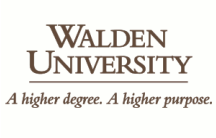

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Beliefs and attitudes regarding health -enhancing behaviors in African American and Caucasian women

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This is to certify that the doctoral dissertation by

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has been found to be complete and satisfactory in all respects,
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ABSTRACT

Beliefs and Attitudes Regarding Health-Enhancing Behaviors in African American and Caucasian Women

by

Cassaundra Murray

Dissertation Submitted in Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy
Psychology

Walden University
May 2009

ABSTRACT

A disproportionate number of African American (AA) women are overweight, obese, and more likely to have weight related health concerns compared with Caucasian (C) women. Previous research indicates perception about health-enhancing behaviors influences AA females' health behavior. A gap exists in the current literature regarding AA women's perception of eating and exercise behavior and the impact social support has on AA women's adherence to USDA recommendations. The purpose of this study was twofold: (1) to examine AA women's weight locus of control, perceived susceptibility to weight related diseases, and perceived barriers to healthy eating and exercise relative to C women; and (2) to assess the impact of social support on adherence to USDA recommendations in AA women utilizing the extended health belief model. Participants were a convenience sample of 76 AA and C women ages 20-75 from churches in northeast Texas. A quantitative cross-sectional survey design was employed. ANOVA and linear regression were used to determine if there was a relationship between race and weight locus of control, perceived susceptibility to weight related diseases, and amount of perceived barriers to exercising/healthy eating as well as between perceived social support for exercising/healthy eating and adherence to USDA recommendations in African American women. Results indicated no signficant difference between AA and C participants in weight locus of control, susceptibility to weight-related diseases, or barriers to exercising/healthy eating. Social support predicted adherence to USDA recommendations in AA women. This enhances social change by providing a basis for future studies aimed towards designing and implementing interventions and strategies to help AA and C women improve their health.

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DEDICATION

I would like to dedicate this dissertation to my mother, Johnnie Lee Hobbs, who was my inspiration, supporter, and encourager throughout this process. She instilled in me a strong work ethic and a drive to fulfill my dreams. I also dedicate this dissertation to my little girl, Jaeyln Murray, as I hope to one day be an inspiration to her.

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CHAPTER 1:

INTRODUCTION

Introduction

The number of individuals who are either overweight or obese has steadily increased in the United States over the past 20 years (National Institutes of Health, 2004). Approximately two-thirds or over 60% of Americans are now considered either overweight or obese compared to around 30% in 1980 (Center for Disease Control, 2004; Peters, 2003; Surgeon General's Report, 2004). The rising prevalence of overweight and obese individuals has been a major concern addressed by both the Surgeon General and the Healthy People 2010 initiative, mainly because of the associated health risks. Being overweight or obese often results in an increased risk of life-threatening illnesses including, heart disease, Type II diabetes, hypertension, stroke, and some cancers, as well as increased health costs (Surgeon General's Report; United States Department of Health and Human Services [USDHHS], 2004).

Although the prevalence of obesity and overweight are on the rise in all populations, African Americans, particularly AA women, are disproportionately represented (Healthy People 2010; Lewis et al., 2004). According to the American Heart Association (AHA, 2008), an estimated 79.6% of AA women are overweight or obese and at an increased risk for developing obesity related conditions. Despite this increased risk, few AA women regularly engage in behaviors that are known to improve their weight and health (Fitzgibbon, Stolley, Schiffer, & Johnson, 2005; Genkinger, Jehn, Sapun, & Young, 2006).

Guidelines such as those outlined by the United States Department of Agriculture (USDA) provide standard dietary and physical activity guidelines to improve the health of Americans. These guidelines suggest being physically active for at least 30 minutes most days of the week with food intake mainly coming from grains, vegetables, fruit, and other low fat foods. Many Americans fail to meet these suggestions, with AA women being less likely than other populations (Lemonick, 2004; USDHHS, 2005). Almost 70% of AA women reportedly do not engage in exercise at least three times per week and many report dietary practices that are high in fat and lacking in fruit, vegetables, and whole grains (Felton, Boyd, Bartoces, & Tavakoli, 2002; USDHHS).

This limited participation in health-enhancing behaviors may derive from factors other than lack of general health knowledge, as research has documented that these women are aware of the health-enhancing behaviors that they need to engage in to lose weight (Drayton-Brook & White, 2004). In addition, when AA women attempt to lose weight, they are often less successful than C women, even when potentially confounding variables such as formal education levels and income are considered (Baturka, Hornsby, & Schorling, 2000; Wilson-Ford, 1992). Barriers to following weight loss recommendations need to be identified to assist with developing effective interventions for this population that result in more positive health outcomes. Barriers will be discussed further in chapter 2.

Although AA women may be aware of the lifestyle changes that they need to make in order to lose weight, they may not be aware of many of the health risks

associated with being overweight or obese (USDHHS, 1985). A 1985 report issued by the United States Task Force on AA and Minority Health suggested that African Americans tend to underestimate the prevalence of cancer in the AA population, and have less knowledge about specific problem health areas such as cancer, heart disease, and diabetes (USDHHS). The United States Task Force report also mentioned that many minorities and nonminorities, including health professionals, do not know that AA women die from heart disease at a higher rate than nonminority women. Recent studies have confirmed this underestimation of heart disease risk. Sadler et al. (2005) found in their exploratory review of AA women's perspective on the most serious health problems facing this population, that only 31% perceived heart disease as a major threat to their health. More encouraging results indicate that cancer was rated by 81% of these women as a serious health threat, with diabetes rated by 59% and cerebrovascular disease rated by 52% as being serious health threats. This suggests that although AA women's perceived susceptibility to certain diseases such as cancer has increased, many are still unaware of their high risk to diseases such as heart disease and diabetes. The risk of developing these conditions is increased when an individual is overweight or obese. It is not clear the extent to which AA women understand their susceptibility to the life-threatening conditions associated with being overweight.

Background of the Problem

There are many predictors of behavior. It is well documented in the social sciences that attitudes and beliefs are major predictors of behavior (Madon et al., 2006),

and beliefs specific to a culture often guide that culture's behaviors and attitudes. In the AA community, culture substantially influences individuals' beliefs and behaviors regarding health (Davis et al., 2005; Hargreaves, Schlundt, Maciej, & Buchowski, 2002). These beliefs and behaviors can affect this population's adherence to health standards that promote healthy behaviors. Johnson and Broadnax (2003) stressed a need to understand the connection between the historical, cultural, and psychosocial aspects of health behaviors in AA women, as simply examining diet and exercise behaviors does not adequately provide a solution to the problem with obesity. These factors will be discussed in chapter 2.

Statement of the Problem

Previous research suggests a need to understand the beliefs and attitudes regarding how AA women perceive themselves and their health risks (Drayton-Brooks & White, 2004). With more than 70% of AA women being overweight or obese and at risk for life-threatening diseases, there is a need to understand factors that affect their adherence to weight loss recommendations (AHA, 2008). Although perceived susceptibility to disease, perceived control over weight, perceived social support, and perceived barriers to health-enhancing behaviors have been found to be significant influences on AA women's overall health behavior, the role that they play on AA women's behaviors aimed at weight loss remains unclear (Douglass, Bartolucci, & Koch, 2002; Frank, Swedmark, & Grubbs, 2004; Waterbor, & Sirles, 1995). Various studies have examined each of these beliefs in isolation; however, few have examined this

combination of variables. Moreover, none identified have examined the connection of these variables to AA women's engagement in behaviors aimed at weight loss or maintenance of a healthy weight.

Many of the studies that have examined this population's beliefs regarding health-enhancing behaviors have produced conflicting results. Therefore, it is not clear how AA women's beliefs affect these behaviors. This research examines how AA women's perceived barriers to exercise/eating behaviors, perceived susceptibility to disease, perceived control over weight, and perceived social support compare to those of C women using the extended health belief model (EHBM) as the theoretical foundation. Examining these variables in AA women may assist with determining what to address when trying to help these women with weight loss. The EHBM, along with its precise role in this study, is discussed briefly in this chapter and in more detail in chapter 2.

Theoretical Foundation

The health belief model (HBM) was designed to predict or explain individual health related behaviors based on disease avoidance (Becker et al., 1977). It is centered on the assumption that behavior or decisions made under conditions of uncertainty are based on both the individual's readiness to take action, and the expectation that this action will produce a desired result (Becker et al.).

The HBM originally identified perceived susceptibility to disease, perceived severity of disease, perceived benefits of health-enhancing behaviors, and perceived barriers to health-enhancing behaviors as predictors of health behaviors, but was

extended by Becker et al. (1977) to include sociopsychological factors, such as locus of control over health behavior, health motivation, and demographic variables, including age, race, and gender, which are thought to influence health-enhancing behaviors indirectly (Aalto & Uutela, 1997; Becker et al.). Aalto and Uutela developed the EHBM when they further extended the HBM to include more specific sociopsychological factors such as health value, self-efficacy, locus of control, and social support. A more detailed discussion of both the HBM and the EHBM is included in chapter 2.

Purpose of the Study

Although an estimated 79.6% of AA women are overweight or obese and at an increased risk for developing obesity related conditions, few regularly engage in behaviors that are known to improve their weight and health (AHA, 2008; Fitzgibbon, Stolley, Schiffer, & Johnson, 2005; Genkinger et al., 2006). With so many AA women being overweight or obese and at risk for life-threatening diseases, there is a need to understand factors that affect their adherence to health-enhancing behaviors such as those recommended by the USDA (AHA).

The purpose of this research was to examine culture-specific beliefs and attitudes that impede AA women's adherence to USDA recommendations and consequently affect their health by comparing them to those of Caucasian women. This study will assist treatment providers as well as those dedicated to developing health improvement programs for AA women, such as USDHHS and National Institutes of Health, with identifying beliefs and attitudes that impede this population's aherence to treatment

recommendations and health guidelines. Providers can in turn work with AA women to eliminate or reduce those obstacles or create programs that address them. As a result, AA women may feel more comfortable with treatment providers and may benefit from interventions that meet their needs, possibly leading to increased adherence to treatment recommendations and improved health (Drayton-Brooks & White, 2004).

In particular, this study explored the relationship between race and weight locus of control, race and perceived susceptibility to disease, race and barriers to exercising, and race and barriers to eating healthy. It also explored the relationship between social support for exercise and eating healthy and adherence to USDA recommendations in AA women. Examining these variables in AA women may assist with determining what to address when trying to help these women with weight loss. Further, comparing AA women's beliefs and attitudes to those of C woman may possibly pinpoint certain factors that are more problematic within this population.

Research Questions

1. Do AA women perceive more locus of control or less locus of control over their weight (as determined by the Dieting Beliefs Survey) than do C women?

2. Do AA women believe that they are less susceptible to weight related disease than C women?

3. Do AA women perceive more barriers to exercising (as determined by the Barriers to Physical Activity Survey) and eating healthy (as determined by the Barriers to Eating Healthy Questionnaire) than do C women?

4. Does the level of perceived support (as determined by the Social Support for Eating Habits and Social Support for Physical Activity Surveys) for AA women correlate with their compliance to weight loss suggestions (as determined by the USDA Recommendations Survey)?

Hypotheses

1. There is a relationship between race and degree of weight locus of control (as measured by the DBS).

2. There is a relationship between race and perceived susceptibility to weight related diseases.

3. There is a relationship between race and amount of perceived barriers to exercising and eating a healthy diet.

4. There is a relationship between perceived social support for exercising and eating healthy and adherence to USDA recommendations in AA women.

Definitions of Theoretical Constructs

Body mass index (BMI): BMI is a relation of weight to height that is commonly used as a measure to determine whether an individual is overweight or obese (Mayo Clinic, 2004). It can be calculated as weight in kilograms (km) divided by the square of height in meters (USDHHS, 2005).

Cues to action: a stimulus that triggers an appropriate health action (Becker et al., 1977).

*Culture***:** the customary beliefs, social norms, and material traits of a racial, religious, or social group; the characteristic features of everyday existence shared by

people in a place or time; the set of shared attitudes, values, goals, and practices that characterizes an institution or organization (Smith & Bond, 1993).

*Exercise***:** physical activity that is planned or structured and involves repetitive bodily movement done to improve or maintain one or more of the components of physical fitness: cardio respiratory endurance, muscular strength, muscular endurance, flexibility, and body composition (USDHHS, 2007).

*Health beliefs***:** beliefs held by an individual that are centered around health, such as perceived susceptibility to disease, perceived severity to disease, perceived benefits to health-enhancing behaviors, and perceived barriers to health-enhancing behaviors (Becker & Rosenstock, 1984).

Health-enhancing behaviors: a set of behaviors aimed at improving health.

Health value: the importance placed on health (Aalto & Uutela, 1997).

Locus of control: the things (either internal or external) to which individuals attribute health (Aalto & Uutela, 1997).

Low income level: an individual whose family's taxable income does not exceed 150% of the poverty level amount (United States Department of Education, 2006).

*Obese I***:** persons with a BMI of 30 to 34.9 (Wilson et al., 2007).

Obese II: persons with a BMI of 35 to 39.9 (Wilson et al., 2007).

Obese III/extreme obesity: persons with a BMI of > 40 (Wilson et al., 2007).

*Overweight***:** persons with a BMI of 25 to 29 or a waist measurement of 40 inches or more for men and 35 or more inches for women (CDC, 2004; Mayo Clinic, 2004).

Perceived barriers to health-enhancing behaviors: things that an individual feels hinder his or his participation in positive health behaviors such as exercising and eating foods that promote good health such as fruit, vegetables, whole grains (Becker et al., 1977).

*Perceived benefits of health-enhancing behaviors***:** belief in the effectiveness or value of a behavior in reducing a threat to health (Becker et al., 1977).

*Perceived severity to disease***:** the potential for an illness to cause physical harm or interfere with social functioning (Becker et al., 1977)**.**

Perceived susceptibility to disease: an individual's perception of how likely he or she is to develop an obesity related illness (Becker & Rosenstock, 1984).

*Physical activity***:** any bodily movement produced by skeletal muscles that result in an expenditure of energy (USDHHS, 2007).

Self-efficacy: confidence in ability to engage in health behaviors (Aalto & Uutela, 1997).

*Socioeconomic status***:** for the purpose of this study socioeconomic status includes education, occupation, and income (or self-selection of income).

*Sociopsychological variables***:** social support/pressure, locus of control, health value, personality traits, and self-efficacy (Aalto & Uutela, 1997; Becker et al., 1977).

Social support - the extent to which an individual feels supported in his or her actions by family members and significant others.

Weight external locus of control: the tendency to attribute weight to external factors such as luck, heredity, fate and to others (Brownell, 1998; Weiner, 1989).

Weight internal locus of control: the tendency to attribute weight to internal factors such as ability and effort (Brownell, 1998; Weiner, 1989).

Significance

Health-enhancing behaviors recommended by the USDA (2005), which include daily consumption of fruits, vegetables, and whole grains, limiting intake of salt and saturated fat, and engaging in physical activity most days of the week, can decrease the risk for life-threatening diseases such as heart disease, type II diabetes, hypertension, stroke, and some cancers. Further, these behaviors have also been shown to encourage weight loss and a healthy weight. As findings have indicated that AA women do not consistently engage in these health-enhancing behaviors and have the highest incidence of overweight and obesity (Drayton-Brooks & White, 2004; Kumanyika, 1993; USDHHS, 2000), there is a need to explore obstacles to engaging in these behaviors within this population.

Beliefs, attitudes, and environmental context can influence behavior (Douglass, Bartolucci, Waterbor, & Sirles, 1995). However, there have been inconsistent and incomplete findings concerning the impact that health beliefs have on weight related behavior in AA women. In some studies, those with an internal locus of control were more likely to engage in behaviors leading to weight loss than those with external locus of control (Nir & Neumann, 1995; Silverman, Israel, & Shapiro, 1986). Other studies

found no significant difference between those with internal and external beliefs (Frewan & Schomer, 1994; Mills, 1994). Still others have found that beliefs only moderately impact health-enhancing behaviors (Burack & Liang, 1989).

Examining the beliefs, group specific attitudes, and environmental context that may affect adherence to health recommendations such as those outlined by the USDA may be an important contribution to understanding AA women's health behaviors (Drayton-Brooks & White, 2004; Douglass et. al, 1995; Consedine, Magai, Conway, & Neugut, 2004; Graham, 2002). Various studies have examined each of these factors in isolation; however, few have examined the effect of this combination of variables on behavior. Moreover, none have examined the connection of these variables to AA women's engagement in behaviors aimed at weight loss or maintenance of a healthy weight, such as those recommended by the USDA. This study examined the beliefs and attitudes that may affect AA women's adherence to USDA recommendations in comparison to C women, and was guided by the EHBM. This study can provide a basis for future studies aimed towards designing and implementing interventions and strategies to help AA women improve their health. The outcome may be increased adherence to treatment recommendations and improved health in this population (Drayton-Brooks & White, 2004). This increased adherence to treatment recommendations and improved health was the expected social change aspect of this study.

Assumptions and Limitations

This study assumed that the women in the study infrequently engaged in health-enhancing behaviors such as exercising and eating a healthy diet. It was also assumed that the women surveyed were somewhat aware of the behaviors that are needed to lose weight.

There is the possibility that the women who agreed to participate in this study considered themselves at risk for weight related disease and agreed to participate as a result. If this were the case, the participants might not be representative of most AA or C women, which may limit the generalizability of the study. Using a convenience sample for this study may also limit the generalizability of the results.

Scope and Delimitations

The scope of this study is the impact that overweight and obesity has on the health of AA women and the influence that health beliefs has on the exercise/eating behavior of both AA and C women. The survey instruments used in this study were multiple choice, which did not give the participants a chance to explain or elaborate on their answers. This could have potentially resulted in missed information regarding beliefs. For ease of data collection this study focused only on participants within the Southwest. This study utilized a sample of convenience, which limits generalizeability of the results.

Summary and Transition

Obesity is a prevalent problem that contributes to several health risks (AHA, 2008; USDHHS, 2004). More AA women are obese or overweight than C women or AA

men (USDHHS, 2005). This has contributed to the high incidence of obesity related conditions such as heart disease, type II diabetes, some cancers, stroke, and hypertension in AA women. There are a number of factors that contribute to health behaviors in AA women. Research has indicated that culture specific attitudes and beliefs, perceived susceptibility to disease, perceived barriers to health-enhancing behaviors such as exercise and eating healthy, perceived control over behaviors, and perceived social support to engage in health-enhancing behaviors all contribute to AA women's engagement in health behaviors (Russell, 2006; Unson, Fortinsky, Prestwood, & Reisine, 2005; Frank, Swedmark, Grubbs, 2004). This study explored these variables using the EHBM as a theoretical guide.

Chapter 2 reviews the literature used to provide the groundwork for this project. It provides information on the relevant studies that show the importance of studying the obstacles that impede AA women's adherence to USDA recommendations. It discusses all contributing factors that were found in the literature.

Chapter 3 discusses the research method that was used in this study. It talks about the type of research used as well as the participants, assessments used to measure research variables, and the procedures used to obtain participant involvement and conduct the study. Chapter 4 talks about the results of the study and chapter 5 summarizes and discusses the results.

CHAPTER 2:

LITERATURE REVIEW

Introduction

Obesity is thought to be one of the main contributors to major health problems such as heart disease and diabetes (Center Disease Control [CDC], 2004). Over 300,000 deaths per year are reportedly due to complications from being overweight or obese (USDHHS, 2004). Those individuals who are overweight or obese accounted for over 9.1% of medical costs in the United States, totaling around $117 billion in 2000 (Finkelstein, Fiebelkorn, & Wang, 2003; USDHHS). AA women are disproportionately represented among the overweight and obese and have an increased prevalence of obesity related diseases and conditions such as heart disease, Type II diabetes, some cancers, stroke, and hypertension (USDHHS; AHA, 2006). Recently there has been an increased amount of research in this area in an attempt to understand this disparity and to assist with appropriate interventions. Research has stressed a need to identify and understand factors that contribute to the higher rate of overweight and obesity, as well as associated diseases, in these women (Healthy People 2010; Drayton-Brooks & White, 2004). This study could contribute to the identification and understanding of those factors using the extended health belief model (EHBM) as a theoretical framework.

This literature review begins with a review of search methods and terms used to obtain the articles that provided background for this research. It is organized around issues related to obesity. It discusses obesity and the problem with this condition in AA

women. Next, the EHBM is discussed in an effort to explain possible connections between obesity and health beliefs. There is a discussion
on health beliefs that may contribute to AA women's level of participation in behaviors aimed at weight loss or weight management. This chapter then discusses research that has examined the EHBM or HBM in AA women. Contributing factors to the prevalence of obesity apart from the EHBM are discussed, followed by a review of specific variables that are found to contribute to obesity and decrease the occurrence of health-enhancing behaviors in AA women. This chapter ends with a summary of pertinent findings obtained from the literature regarding contributing factors to AA women's health beliefs that contribute to their weight status.

Research Strategy

The review of the literature began by searching the EBSCOHOST database. PsycARTICLES, MEDLINE, CINAHL, CINAHL Plus, PRE-CINAHL, Health Source, and the Dissertation Database were searched using such terms as *adherence*, *weight loss,* and *AA women*. Other search terms used were *AA women* along with *health beliefs* and *attitudes, dietary practices*, and *exercise behavior*. Research papers from past courses were also reviewed. Information was obtained from research papers that examined body image in AA women, adherence obstacles to weight loss, and the effects of weight loss education on weight locus of control.

Literature Review

Obesity Prevalence and Associated Health Risks

The prevalence of obese and overweight AA women is at an all-time high. Although this is the case for much of the U.S. population, more AA women are considered either overweight or obese than any other group (AHA, 2006). The higher prevalence of obesity and overweight in AA women has been noted for decades, as have the more prevalent rates of threatening diseases and conditions such as heart disease, diabetes, hypertension, stroke and some cancers (USDHHS, 1985). Although these conditions are also a problem in other populations, they are more pronounced in AA women.

According to the American Diabetic Association (ADA) (2006), AA women are up to four times as likely to develop Type II diabetes, which is often linked with heart disease and stroke, as C women. ADA reported that one of the major contributors to Type II diabetes is being overweight, and that nearly nine out of 10 people newly diagnosed with diabetes are overweight. The ADA reported that people with diabetes have deaths from heart disease and stroke two to four times the rate of those without diabetes. They are also more likely be overweight, have high blood pressure, and high cholesterol (ADA), although African Americans are more likely to have these conditions regardless of weight (Kumanyika, 1993). This suggests a connection between the high number of obese and overweight AA women and the high occurrence of diabetes and heart disease

in this population. Therefore, being obese or overweight further increases risks for developing these conditions in a population that is already at risk.

Although research has indicated that obesity and overweight is the result of eating more calories than one consumes, a number of genetic, metabolic, behavioral, environmental, cultural, and socioeconomic factors also affect weight status (USDHHS, 2000). Some of these factors, such as those that are genetic and metabolic, may not be under one's control; however, those such as behavior, eating habits, and physical activity are modifiable. What has been baffling to some is the fact that modifiable lifestyle factors play a large part in the development and severity of the life-threatening conditions mentioned earlier, yet they remain a problem across the U.S. population and especially in AA women (USDHHS, 2005). Modifiable lifestyle factors, such as engaging in health enhancing dietary and physical activity behaviors and losing excess weight, can also improve quality of life.

For those who are overweight, losing just 10% of body weight can decrease health risks for the diseases and conditions mentioned above (CDC, 2004; USDHHS, 2005; Mayo Clinic, 2004). It has been recognized for the past several years that despite being more likely to be obese or overweight and at an increased chance of having life-threatening diseases related to these conditions, many AA women do not engage in these behaviors (USDHHS, 2000). Research conducted by The Advertising Council, American Cancer Society, AHA, and the ADA suggested that these women are knowledgeable about the benefits of eating healthfully and being active, but are not motivated to

maintain these lifestyle habits (Obesity Fitness and Wellness Week, 2006). This study focused on lifestyle factors that are modifiable, although it is acknowledged that a combination of modifiable and unmodifiable factors contributes to weight status.

Health-Enhancing Behaviors

Health-enhancing behaviors can be considered those behaviors that are proven to improve health and prevent life-threatening diseases (Drayton-Brooks & White, 2004). It has been well documented that eating a diet filled with fruits, vegetables, and whole grains, while limiting intake of salt and saturated fats, promotes good health by decreasing chances of developing life-threatening diseases as well as encouraging weight loss and a maintenance of a healthy weight (USDHHS, 1985, 2000). On the other hand, failure to eat a healthy diet is associated with four of the major causes of death mentioned earlier, including heart disease, diabetes, some types of cancer, and stroke (CDC, 2004).

A lack of adherence to a healthy diet is a problem across all populations. According to the Surgeon General's Report on obesity, just 3% of Americans adhere to at least four of the five federal Food Guide Pyramid recommendations for the consumption of grains, fruits, vegetables, dairy products, and meats (USDHHS, 2005). Less than one third of Americans meet the suggestion of engaging in at least 30 minutes of moderate physical activity at least five days a week, while 40% engage in no physical activity at all (USDHHS, 2005). However, AA women are furthest from these guidelines. This is consistent with research findings that suggest that these

women are the most at risk for the weight related diseases mentioned above but are the least likely to engage in behaviors found to improve or prevent these diseases (Genkinger et al., 2006; Fitzgibbon, Stolley, Schiffer, & Johnson, 2005).

Information provided by Healthy People 2010 suggests that during 1999-2000, African Americans consumed fewer vegetable servings per day than either Caucasians or Hispanics (USDHHS, 2000). Further, African Americans consistently lagged behind Caucasians and Hispanics in suggested nutritional servings by the USDA (USDHHS). For example, fewer African Americans consumed two or more fruit servings, fewer consumed 6 to 10 servings of grains, fewer consumed less than 10% of fat from saturated fat, and fewer consumed no more than 30% of calories from fat. This survey did find an exception: More African Americans consumed 2,400 mg or less of sodium as compared to Caucasians, a fact which is not consistent with African Americans' higher prevalence of hypertension (USDHHS). This suggests that factors other than high sodium intake may contribute to hypertension.

According to the USDHHS in their 2004 review of the Healthy People 2010 objectives, those individuals from lower income levels were also found to fall short of recommended dietary servings as compared to those from higher income levels. These findings suggested that both African Americans and individuals with low income levels met dietary recommendations less often than those from C or Hispanic (H) ethnic groups and those from high income levels. These findings had not changed much since 2000, when the objectives were developed (USSHS, 2000). As AA women are more likely to

have lower income levels than C women, this automatically makes them more likely to be overweight or obese (Kumanyika, Morssink, & Nestle, 2001). This is consistent with results from other research studies examining the dietary practices of various ethnic groups and income levels (USDHHS, 2000; Howarth et al., 2006).

A review of the literature has identified certain variables, including cultural influences, body image, perceived barriers, perceived susceptibility, social support, and perceived locus of control, as significant contributors to health behaviors in this population (Hargreaves, Schlundt, & Buchowski, 2002; Russel1 & Jewell, 1992; Hawkins, 2005). Since many of these variables also affect health-enhancing behaviors in other cultures, there needs to be some examination into how they uniquely affect AA women. It is also necessary to determine whether any of these particular variables are more prevalent in this population and therefore affect their participation in health-enhancing behaviors such as eating a healthy diet and exercising more so than other variables. This study used the EHBM in order to shed light on beliefs that contribute to health behaviors aimed at obtaining and maintaining a healthy weight in AA women in comparison to C women.

Extended Heath Belief Model

The EHBM is an extension of the health belief model (HBM), which was designed to predict or explain health behaviors (Becker et al., 1977). The HBM describes behavior and or decision-making under conditions of uncertainty (Becker et al.). It attempts to predict an individual's decision to engage in behaviors thought to improve

health. The HBM is based on the assumption that an individual's decision to engage in health-enhancing behaviors is based on his or her readiness to take action and the perceived effectiveness and feasibility of the health behavior in question (Aalto & Uutela, 1997). Further, it is assumes that the individual is motivated to avoid illness or to get well, have a desire for a certain level of health, and believes that a specific health action will prevent or improve disease (Becker et al.). The HBM further purport that before an individual engages in health-enhancing behaviors, there must be a stimulus that prompts him or her to engage in these behaviors; this is considered a "cue to action" (Becker et al.). According to Becker et al. this cue can be either internal (e.g., symptoms) or external (e.g., suggestion from others).

The HBM originally included four components: perceived susceptibility to disease (likelihood of its occurrence), perceived severity of disease (its potential for limiting physical functioning or causing physical harm), perceived benefits of health-enhancing behaviors (likelihood that they will reduce threat to disease), and perceived barriers (feasibility of the action) to health-enhancing behaviors (Becker et al., 1977). Becker et al. expanded the HBM to include what they termed demographic (i.e., age, race, gender, ethnicity) and sociopsychological variables (i.e., personality, social class, peer and reference group pressure). These variables are considered modifying factors in that they directly influence perceptions and indirectly influence health-enhancing behaviors (Becker et al). An example of this model is shown in Figure 1.

For example, an AA may perceive that he or she is more susceptible to hypertension because of his or her ethnicity; this may increase his or her perceived threat of developing hypertension thus resulting in an increased likelihood of engaging in a health enhancing behavior aimed at preventing or reducing hypertension such as lowering sodium intake. Although these variables were good predictors of health behaviors, there were concerns that the HBM did not predict behavior as well as those models that identified more specific psychosocial variables such as locus of control and social support (Brennon & Feist, 2004; King, 1985; Becker et al.).

Aalto and Uutela (1997) took these concerns into consideration and extended the HBM to include four specific psychosocial variables: health value (the importance placed on health), self-efficacy (confidence in ability to engage in health behaviors), locus of control (the things that individuals attribute health to), and social support (being supported by significant others). Although Becker et al. (1977) indicated that these factors indirectly influence health-enhancing behaviors. Aalto and Uutela suggested that there are instances when there is a direct connection between sociopsychological variables and health-enhancing behaviors.

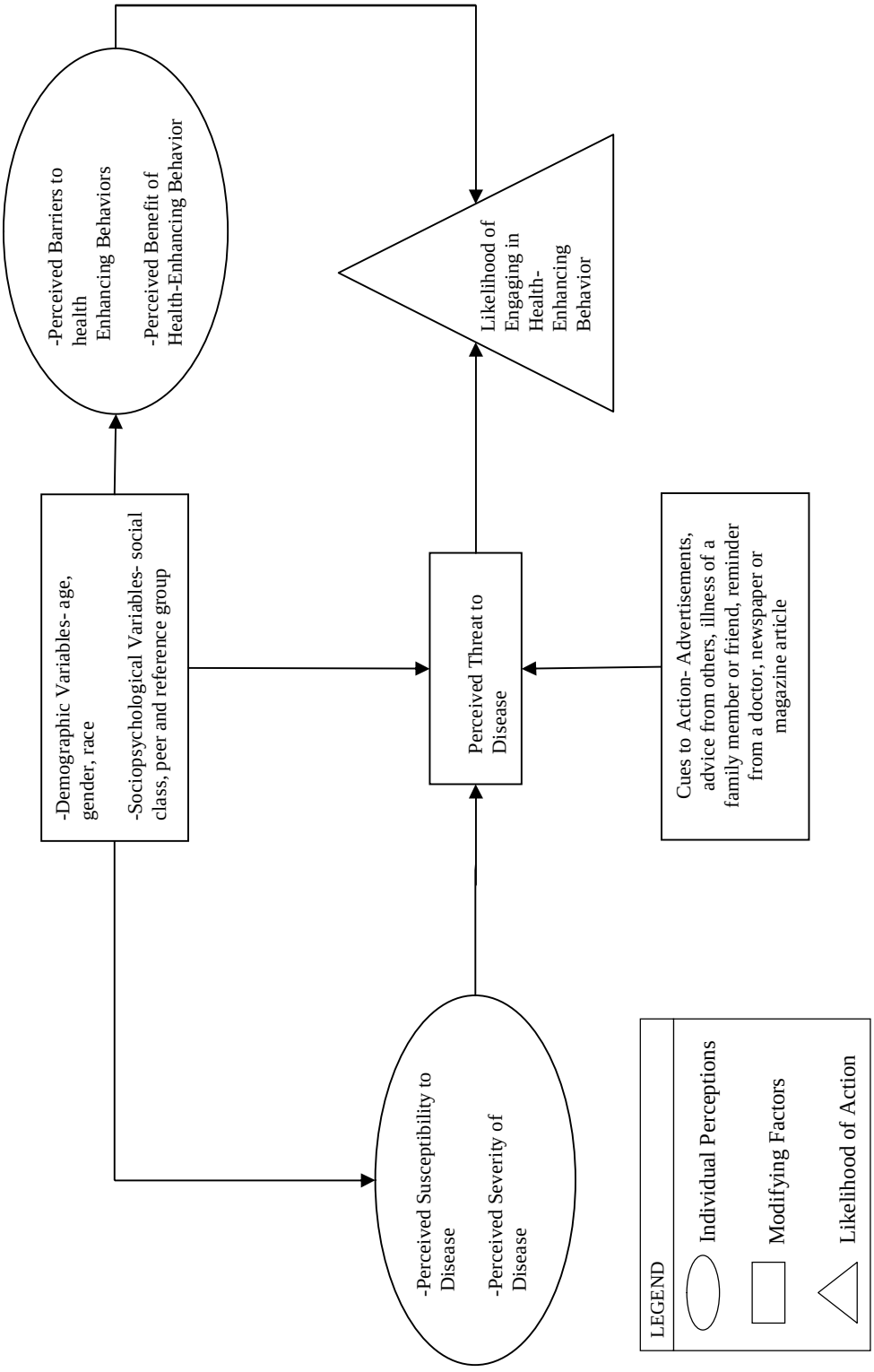

Figure 1. Derived from the original formulation of the health belief model Becker & Maim, 1975

For example, pressure from a family member to lose weight may result in an individual engaging in health-enhancing behaviors without an increase in the perceived threat to health. An example of this model is shown in Figure 2.

This study focuses on the perceived barriers to health-enhancing behaviors and perceived susceptibility to disease componanents of the HBM as they relate to weight loss behaviors in AA and C women in addition to specific sociopsychological variables that contribute to these perceptions such as perceived locus of control, social support, and culture. These componants have been identified as the major predictors and influences of behavior in this population (Champion, & Springston, 1999). In addition, the influence of demographic variables such as age, social class, and of course race was taken into consideration for the same reason.

HBM Studies on AA Women

A review of the literature revealed studies that have used the original HBM to better understand the disparity in AA women's incidence of cancer and diabetes as well as the occurrence of health-enhancing behaviors such as mammography adherence, colon cancer screening, and exercise (Russell, 2006; Unson, Fortinsky, Prestwood, & Reisine, 2005; Frank, Swedmark, Grubbs, 2004; Vadaparamil, et al., 2003; Koch, 2002; Ashing-Giwa, 1999; Champion & Springston, 1999; Douglass, Bartolucci, Waterbor, & Sirles, 1995). As suggested earlier, the beliefs found in these studies to have the most significant impact on AA Women's health-enhancing behaviors included perceived barriers to health-enhancing behaviors and perceived susceptibility to disease.

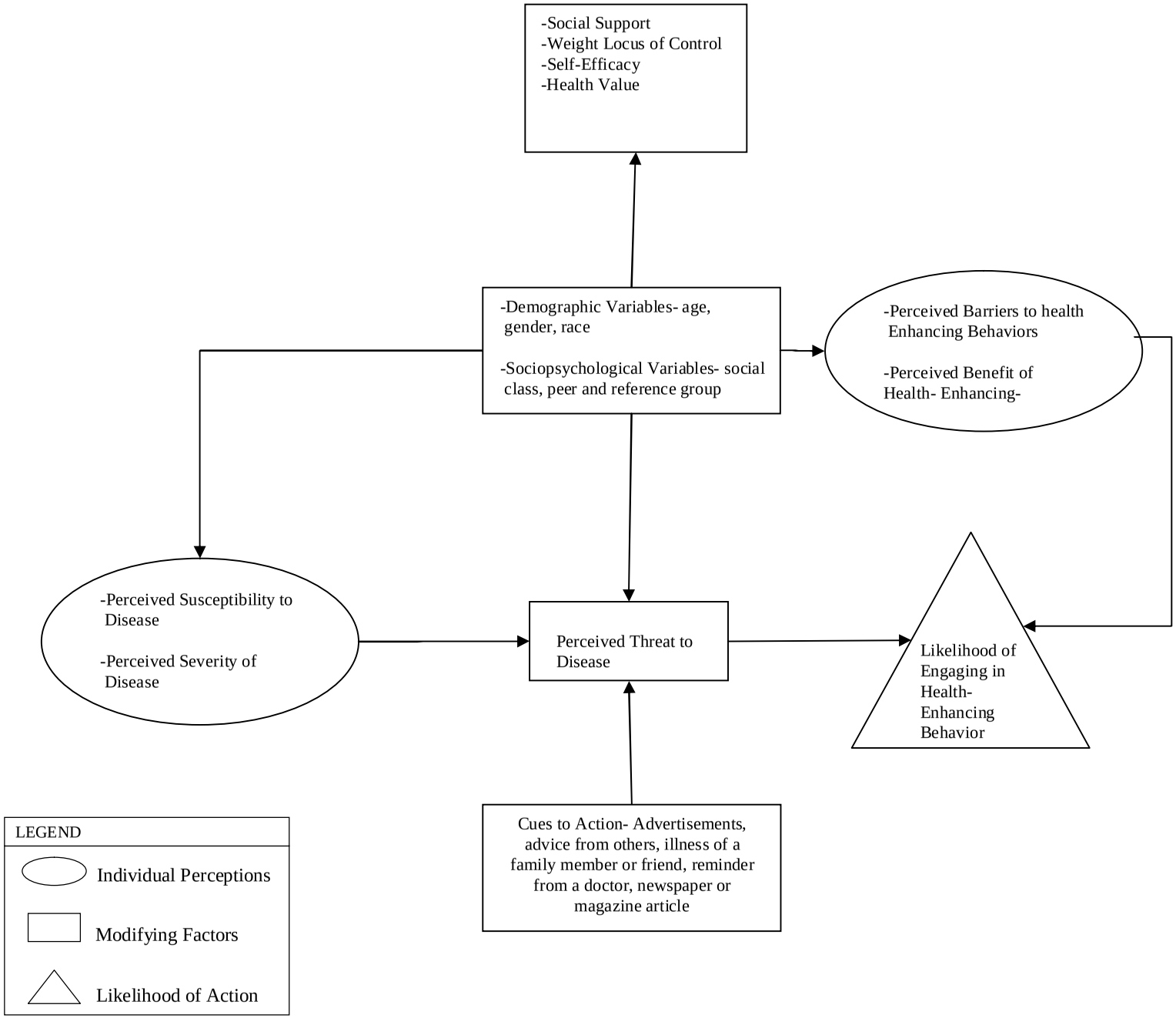

Figure 2. Derived from the extended health belief model
Aalto & Utelo, 1997

Specific sociopsychological variables such as social support, locus of control, and culture were also identified as influences as well as demographic variables that include age, income levels, and education levels (Russell, 2006; Frank et al., 2004; Koch, 2002; Champion & Springston, 1999).

Perceived Barriers

Research suggests that perceived barriers to health-enhancing behaviors are an issue for both African Americans and Caucasians. Douglass et al. (1995) found in their exploratory study, aimed at identifying differences in AA and C women's health beliefs and practices regarding early detection of breast cancer, that C women actually reported more barriers to mammography and clinical breast examinations. However, AA women were no more likely to obtain these screenings despite perceiving fewer barriers. An interesting finding from this study is that although there was no difference in health beliefs regarding self breast examinations between AA and C women, AA women performed self breast examinations more often than C women. According to Douglass et al., subjects were all professional educators which could indicate that when income and education levels are similar, AA women may be just as likely or more likely to perform self-screenings. Since AA women were more likely to engage in the examination that did not involve the health care system, this may indicate problems with access to this system.

Although AA women in the above study perceived fewer barriers than C women for mammographies and clinical breast examinations, there is some indication that they may have more culture specific barriers to health-enhancing behaviors. Blixen (2006)

found her in focus group study examining differences between AA and C women in their values and beliefs about obesity, that AA cited more culture specific barriers to weight loss such as foods common within their community and pressure to be satisfied with weight.

Hargreaves, Schlundt, and Buchowski (2002) found that AA women's attempts to eat healthy were often hindered by traditions, social influences, habits, and price. Specifically, it has been suggested that barriers common to African Americans, such as families that do not support health-enhancing behaviors, social gatherings that include large amounts of foods high in saturated fat, and culture-specific beliefs, all contribute to AA women's eating habits (Hargreaves et al.).

Russell and Jewell (1992) examined the impact that culture plays on health care practices and suggested that although barriers such as cost, lack of transportation or childcare, and difficulty understanding or following treatment plans are common for African Americans, utilization of health care services is limited in this population even when these types of barriers are eliminated. This suggests other types of barriers that may be more culture specific. Russell and Jewell identified religion, social support networks, and informal health-care systems as common cultural threads that may affect how African Americans utilize health-care systems as well as their engagement in health-enhancing behaviors. This population often turns to informal systems for their health needs. The use of these support networks may serve as a barrier when the advice obtained is contrary to recommendations of the formal health-care system.

Many of the studies examining health behaviors in AA women using the HBM report perceived barriers as a significant factor in predicting health behaviors. Frank et al. (2004) conducted a study on colorectal cancer screening in AA women, and found perceived barriers to this heath enhancing behavior as a significant predictor of whether these women obtained screenings. Over half of participants (55%) reported that perceived barriers such as embarrassment, time, cost, privacy, and discomfort were enough to keep them from obtaining a screening. Although types of barriers were not explored in the study mentioned previously by Douglass et al., these types of barriers may explain AA women's tendency to engage in self breast examinations more so than mammographies or clinical breast examinations. This may suggest that when perceived barriers are eliminated AA women are more likely to engage in health-enhancing behaviors.

There is some indication that those who currently engage in health-enhancing behaviors or who have engaged in them in the past, perceive fewer barriers to participating in those behaviors. Koch's (2002) nonexperimental, ex- post- facto comparative design study confirmed this finding when she examined exercise behavior in AA women. Koch found perceived barriers to exercise to be a strong predictor of exercise behavior. However, those who engaged in exercise at least three times per week perceived fewer barriers to this behavior than those that did not exercise. This is consistent with findings by Champion and Springston (1999), who found through their correlational study, that those who received mammograms regularly perceived fewer barriers to obtaining them. These findings suggest that exposure to health-enhancing

behaviors may decrease the perception of barriers to those behaviors. It also suggests that providing AA women with information regarding ways to engage in health-enhancing behaviors may increase participation in these behaviors.

A qualitative focus group study examining health-enhancing behaviors in AA women conducted by Johnson and Nies (2004) found that most barriers fell under the categories of cost, lack of motivation, and lack of discipline or time. However, many of the participants viewed these barriers differently. For some, cost was a barrier while for others it was an influence. Some participants suggested that they did not have enough time to engage in health-enhancing behaviors, while others viewed this as a lack of discipline (not a top priority). Most viewed lack of motivation as either "being lazy" or not engaging in health-enhancing behaviors due to behaving out of habit. The categories for the barriers mentioned in this study are consistent with those found in the literature; however, the lack of conceptualization of what these variables mean may have resulted in the participants viewing them differently. This finding were confirmed by Drayton-Brooks and White (2004), who identified barriers to health-enhancing behaviors such as the expense of healthy food, time constraints, and lack of motivation in their focus group studying examining health prompting behaviors in AA women (Drayton-Brooks & White; Johnson & Nies).

Despite reporting numerous barriers to behaviors aimed at weight loss, many AA women feel that they can lose weight if they make a concentrated effort to do so in spite of these barriers (Baturka, Hornsby, & Schorling, 2000). Though many of these women

may feel that they can lose weight, they often do not make an attempt to do so as mentioned earlier in this chapter, or are unsuccessful when they do make attempts (Baturka et al; Hawkins, 2005; Kahn, Williamson, & Stevens, 1991). This suggests that a gap between beliefs and behavior exists in this population; however, this has seldom been explored (Fitzgibbon, Stolley, Schiffer, & Johnson, 2005; Jan, Sapun, & Young, 2006).

Perceived Susceptibility

Although being overweight and obese is linked to major health risks, these risks are often not apparent nor considered imminent by many (Frewen & Schomer, 1994). This may be more problematic for AA women as they are more apt to be obese and overweight, and have more weight associated health risks. Hence, not only may African American's failure to see the associated health risks with being overweight or obese affect their weight loss behaviors, but so may their tolerance for heavier body weights. According to Hawkins (2005) this population may not view obesity the same way the medical community does. When Hawkins examined beliefs about weight in a college sample of AA students, many of the males did not perceive themselves to be overweight even though they were in the overweight range. Many participants actually wanted to be larger and were not concerned about weight related health risks. This was attributed to a lack of concern for health risks related to weight, more tolerant attitudes about weight, and less pressure about weight within the AA community. Hawkins suggested that fewer AA women who are in the overweight or obese range try to lose weight than C women. According to Hawkins, even those that are attempting to lose weight or plan to do so,

often do not make the connection between weight and health risks. This is consistent with research regarding perceived susceptibility to disease in this population. Among AA women trying to lose weight, as with those from other populations, the motivations often stem from dissatisfaction with appearance and the way clothes fit rather than health reasons (Baturka et al., 2000). Baranowski, Nicklas, Thompson, and Baranowski (2003) suggested that for this reason, perceived susceptibility may not be a reliable predictor of engagement in behaviors aimed at weight loss until obesity becomes more severe in the society at large.

Although many of the women in the above studies did not make a connection between weight and health problems, there have been studies of AA women (including some of those mentioned above) that found that many women do make a connection between weight and health. Some of the participants in Baturka et al.'s (2000) study named hypertension and stroke as problems experienced by family members because of being overweight. There is also some indication that AA women are aware of the major health risks that affect them. Sadler et al. (2005) found in their exploratory study of AA women's perspective on the most serious health problems affecting them, that cancer, diabetes, heart disease, and cerebrovascular disease are viewed as the top four disease of concern by these women. These are also the top four causes of mortality listed by CDC (2004). However, there is no mention of the contribution of weight to these diseases.

Social Influences

Social influences are another important determinant of health-enhancing behaviors. Researchers have found that those who believe they have social support of health behaviors such as physical activity are more likely to engage in those behaviors (Anderson et al., 2006). This comes in the form of social support or social pressure to engage in or conform to certain behaviors. Social support and social pressures are normally obtained from family members and close friends who are considered a support system (Aalto & Uutela, 1997).

A support system can affect health behaviors in both African Americans and Caucasians. In a study conducted by Anderson, Wojcik, Winett, and Williams (2006) on the social-cognitive determinants of physical activity in AA and C males and females of various ages, self-regulation, which involves such things as planning and scheduling physical activity, was the most significant direct influence on physical activity. According to Anderson et al., family social support had the strongest indirect influence on self-regulation for both races. Although African Americans were as likely as Caucasians to perceive social support for engaging in regular physical activity, they were less likely to engage in physical activity, especially AA women. Further, although African Americans had higher levels of self-efficacy, physical activity outcome expectations (benefits), and time management expectations (belief that they can make time for physical activity), they did not have higher levels of self-regulation. This

suggests that increasing self-regulation in this population may result in higher physical activity levels.

The support system is a major factor in the AA community. African Americans are often strongly connected and influenced by significant others within their community (Russell & Jewell, 1992). Whether or not they engage in health promoting behaviors can depend greatly on the perceived support that they obtain from those they consider important. While AA women report high levels of social support for engaging in physical activity, they also report feeling social pressure to accept their size and to eat foods that are not healthy. This is especially problematic at social gatherings, which are mainstays in the AA community (Felton, Boyd, Bartoces, & Tavakoli, 2002; Hargreaves et al., 2002). As a matter of fact, some women felt pressure from loved ones to be satisfied with themselves as they were. There may be more pressure to be satisfied with one's body than to be thin (Baturka et al., 2000; Duncan & Robinson, 2004). In a focus group study conducted by Davis et al. (2005) on obese women's experiences with weight loss, some of the AA women recalled being pressured to stay overweight. This may contribute to ambivalent feelings about weight in these women.

Russell and Jewell (1992) suggested that a support system is often the source of guidance for African Americans when seeking advice regarding health concerns. This support not only consist of being encouraging of health-enhancing behaviors, but also participating in these types of behaviors as well. A study conducted by Felton et al. (2002) on physical activity in AA women found that 36% of these women stopped being

active because of a lack of support. Many of these women expressed a desire to have someone to exercise with. Similar findings were obtained in a study conducted by Young, Gittelsohn, Charleston, Felix-Aaron, and Appel (2001) on motivations for weight loss in AA women; many of those that reported being physically inactive mentioned that having someone to exercise with them would likely motivate them to exercise. Having someone to exercise with was also a motivator to continue exercising for those that were currently exercising regularly. Since AA women are less likely to engage in regular exercise, it would be more difficult for these women to find someone within their community to exercise with. One other influence found to affect physical activity in AA women is the advice of their physician. Many report that advice from a doctor to either lose weight or begin exercising would possibly motivate them (Young et al., 2001).

Although advice from physicians or health providers are a significant influence on weight loss, many overweight AA women report that they have not received advice from their health provider to lose weight (Mack et al., 2004). Mack et al. found in their analysis of data from the 2000 Behavioral Risk Surveillance System (BRFSS) study of AA, C, and H women examining attitudes and beliefs about the leading causes of death, that over half of women that were considered overweight and who had seen her physician within the past year, had not been advised to lose weight. On the other hand, 80% of the women from each ethnic group who were advised by their physician to lose weight were actively trying to do so, with AA women being slightly more apt to try to lose weight than the other two groups. These findings reveal the influence that physicians and or

health providers have on weight loss in not only AA women, but all women. These results were consistent with research findings presented earlier in this chapter that indicated the importance of physician's influence on AA women's weight loss efforts.

Locus of Control

Locus of control, as described by Hamsher, Geller, and Rotter (1968), is how one attributes things that happen to him or her. This is considered either internal or external (I-E) depending on whether an individual perceives reinforcement as stemming from his or her own actions or as a result of chance, fate, luck, or other powerful forces (Hamsher et al). Internals believe that their own behavior determines their lives and what happens to them, while externals believe that things outside of them determine their lives (Hamsher et. al).

There may not be many individuals that are solely internal or external (Mills, 1991; Mills, 1994). Several individuals have been found to be both internal and external depending on the situation and circumstance (Silverman, Israel, & Shapiro, 1986). This is consistent with findings from an experimental study conducted by Silverman et al., examining the suppressor effect of life events on locus of control and weight loss in mothers involved in a child and family obesity treatment program. Silverman et al. found that these women's locus of control beliefs were influenced by their lifetime experiences and current life circumstances.

This may sometimes be the case for those with life-threatening diseases, those in poverty stricken situations, and or those in minority groups. Often times these individuals

feel a sense of helplessness and hopelessness, leading to a belief that control of their lives is outside of them (Lawson, Rodgers-Rose, & Rajaram, 1999). However, these individuals may actually have limited control over their lives and their situation may not necessarily be a matter of perceiving internal or external control over their lives but a matter of actually having limited control.

The concept of locus of control has been used to examine various behaviors and beliefs including health, weight, and spirituality (Holt, Clark, Kreuter, & Rubio, 2003; Mills, 1994; Silverman et al., 1986). It was suggested that those with more of an internal locus of control tend to engage in more health-enhancing behaviors and have better success with weight loss than those who are more externally motivated (Silverman et al.; Nir & Neumann, 1995). Although it has been suggested that individuals who are obese have more of an external locus of control, some research findings suggest that this is only in regards to issues related to eating and weight control (Mills, 1991; Mills, 1994). In a study by Mills (1991) examining differences in LOC between adults and adolescents in a weight reduction program, many of the participants showed a significant level of internal locus of control in all areas of their lives except those dealing with food and weight. This concept was confirmed in a correlational study by Mills (1994) which revealed that the participants felt in control of all areas of their lives except for their weight status and food related behaviors. This study examines LOC as it relates to weight.

LOC and African Americans

It is a common finding within health research that perceived control over health plays an important role in African American's health behaviors. Two factors found to affect weight locus of control in African Americans are spiritual beliefs and family history of obesity. Russell and Jewell (1992) suggested that spiritual beliefs within the AA culture affect their perceived control over their health behaviors. Many place a strong emphasis on their belief in God and the power of prayer and fate. God is thought to control health and praying to God is thought to determine health condition. Hawkins (2005) suggested that African Americans sometimes have the perception that if they come from a family of overweight or obese individuals, this is their destiny as well. Mills (1994) concluded similar findings in his correlational study examining LOC in obese adults in an outpatient treatment program for obesity. Participants with no family history of obesity were significantly more internally oriented than those who reported a family history of obesity. This is consistent with findings that indicate that AA women want to lose weight but often do not attempt to do so. These individuals may feel unhappy with their weight, but feel that they cannot do much about it because they are supposed to be that way.

Many studies examining locus of control in African Americans have concluded that this population tend to have more of an external locus of control (Ayalon & Young, 2005). However, African Americans tend to attribute much of their lives to the control of God rather than other external factors such as luck (Ayalon & Young). Numerous studies

have found that African Americans tend to have spiritual beliefs that affect their control beliefs and health behaviors (Drayton-Brooks & White, 2004; Holt et al., 2003; Kinney, Emery, Dudley, & Croyle, 2002). For this reason, it has been suggested that traditional locus of control constructs may not be appropriate for African Americans. LOC should be considered within the context of other beliefs such as spirituality when examining this construct in African Americans in order to understand its unique application within this population (Drayton-Brooks & White).

Studies examining locus of control and spirituality suggest that those individuals who rely solely on God for health needs may participate in fewer health-enhancing behaviors such as screenings (Kinney et al., 2002; Underwood & Powell, 2006). In a correlational study by Kinney et al. examining breast cancer screening behaviors in high risk AA women, those with a high level of God health locus of control (GHLOC) or the belief that God controls health, were less likely to adhere to clinical breast examinations and mammographies than those with lower GHLOC scores. Holt et al. (2003) broke this down further when they examined the dual concept of spiritual health locus of control and breast cancer beliefs in urban AA women. Holt et al. (2003) broke spiritual beliefs into active health locus of control (believe that God empowers one to take healthy actions) and passive health locus of control (believe that God is in control of health). Findings from this correlational study suggest that although both active and passive spiritual health locus of control were associated with an internal locus of control, an active spiritual health locus of control was associated with more perceived barriers to

mammography and fewer benefits. This was an unexpected finding as it was hypothesized that those with an active spiritual health locus of control would perceive fewer barriers. This finding may be the result of those with an active health spiritual locus of control possibly taking less control of their health than those with a passive spiritual health locus of control.

Cultural Influences

Research has suggested that culture significantly influences the behavior and beliefs of AA women (Hargreaves et al., 2002). In an exploratory study examining perceptions of obesity and preferences for weight reduction interventions by AA and Caucasian women, Blixen, Singh, Xu, Thacker, and Mascha (2006) found that AA women were more likely to feel that their cultural background was more of a factor in weight gain than did C women. These women were more apt to desire weight loss programs that included information on culture specific food than C women. This suggests that examining cultural factors that impact health behaviors aimed at weight loss may be more important in African Americans than in Caucasians.

In an effort to understand the role that the AA culture plays in AA women's adherence to health-enhancing behaviors aimed at a healthy weight, some studies have identified possible factors prominent in the AA community that may provide insight into this culture's beliefs and attitude about weight. Common themes found to be important among African Americans included body image, perception of weight status, feelings about losing weight, social support, attitudes about physical activity and food, and eating

patterns/food preferences. In a qualitative study by Peters, Aroian and Flack (2006) exploring attitudes and beliefs of African Americans regarding self-care behaviors for hypertension, themes that emerged included health behaviors being passed from generation to generation, having a sense of accountability to others within the culture, and negative views toward those who "act different" by moving outside of the "circle of culture." This circle of culture was considered a binder that keeps individuals connected within the AA community and provides boundaries for culturally acceptable behaviors.

Weight and Body Image

Body image can be defined as the feeling that one has about his or her body. A negative body image can be a contributing factor to low self-esteem and eating disorders (Cash, Morrow, Hrabosky, & Perry, 2004). Several past studies have examined African AA women's body image and found that these women have a more positive body image than C women and other ethnic groups (Altabe, 1998; Miller et al., 2000). Further, fewer AA than C or H women were found to have eating disorders, which often stem from body dissatisfaction and a desire to be thin (Powell & Kahn, 1995; Rubin, Fits, & Becker, 2003). The positive body image that AA women possess has been purported to come from less pressure in the AA community to be thin and less internalization of C American standards of beauty (Makkar & Strube, 1995;Thomas, 1989). Once more, AA women, on average, embrace a curvy, full figure (Villarosa, 1994). It has been suggested that AA women embrace different body ideals than the C dominant ideal (Rubin et al.; Snooks & Hall, 2002).

In an exploratory study conducted by Powell and Kahn (1995), examining the attitudes of AA and C women and men on ideal body image and thinness, AA women chose a larger ideal body size and had less of a discrepancy between their ideal body size and actual size than C women. Similar findings were obtained by Miller et al. (2000) in an exploratory study on body image in African Americans, Caucasians, and Hispanics. AA women reported a higher level of esteem and greater satisfaction regarding their bodies than both C and H women. Once more, these women were less likely to view themselves as overweight (Altabe, 1998; Miller et al).

Although several studies have found that AA women desire, and are happy with, a heavier weight, there is also suggestion that they may be unhappy with being overweight (Baturka et al., 2000). A study by James et al. (2001), examining the body image of AA students at a predominantly C university, found that these students identified with the dominant culture's beauty ideals and were as dissatisfied with their bodies as their C peers. In a focus group study among AA and C women of various income and education levels, Davis et al. (2005) found that AA women were as dissatisfied with their weight as were C women; however, no comparisons of the two groups were made. Some of the studies with findings suggesting little difference in the satisfaction level of AA and C women were conducted in either college populations or those with higher socioeconomic levels (SES), which may, in part, explain the small differences.

There is some suggestion that AA women have fluctuating levels of satisfaction with their weight, going from being satisfied to dissatisfied, depending on acceptance

from close relatives and friends, relative size of others, and perception of others (Baturka et al., 2000). AA women also frequently oscillate between periods of being active and being inactive (Felton et al., 2002). Hence, this population's acceptance of their weight may be influenced by both internal (i.e., attitudes and perceptions) and external factors (i.e., environment, SES level, and support from others). AA women's fluctuating levels of satisfaction with their weight may explain their variable attempts at weight loss and participation in health- enhancing behaviors. Although these variables may influence other population's perceptions of their weight, there appears to be unique cultural attitudes and beliefs, such as body image and perception of weight status that further influence AA women's behaviors aimed at weight loss (Davis et al., 2005).

A review of the literature on weight loss behaviors and feelings about weight loss in AA women revealed that these women may have ambivalent feelings regarding weight loss. Some findings suggest these women are just as likely as C women to want to lose weight (Mack et al., 2004). However, conflicting results exist regarding weight loss attempts in this population.

While some studies have found that AA women attempt to lose weight just as often as their C counterparts, others suggest that they often do not attempt weight loss (Baturka et al., 2000;Kumanyika, Wilson, & Guilford- Davenport, 1993). Kumanyika et al. (1993) found in a survey examining weight loss attempts of 500 socioeconomically diverse AA women that 78% of normal weight women and 90% of overweight women reported having tried to lose weight in the past. This finding was confirmed in an

exploratory study by Kumanyika (1993), which examined weight-related attitudes and behaviors in AA women. According to Kumanyika, the overweight women considered overweight and were less likely to be satisfied with their weight. Further, they were more likely to have dieted and to be currently dieting than nonoverweight women. These findings indicate that when AA women perceive themselves as overweight, regardless of actual weight status, they are more likely to attempt weight loss.

Baturka et al (2000) found conflicting results to the studies mentioned above in their research on body image in AA women from two rural Virginia counties. Baturka et al. found that 17 out of 24 participants expressed a desire to lose weight but only five had made attempts to do so. This indicates that these women's desire to lose weight did not affect their weight loss attempts. They expressed a belief that they could lose weight if they "put their minds to it" but felt little pressure from loved ones or themselves to change their weight. This is consistent with the research mentioned earlier in this chapter indicated that encouragement from family members is a significant contributing factor to engagement in physical activity. Based on these findings, a gap may exist between African American's desire to lose weight, and their actual attempts.

Perception of weight seems to be an important factor in determining weight loss behaviors. One thing that emerged in the literature is the importance of one's perception of what is considered overweight or obese. It was suggested that AA women are less likely to view themselves as overweight than C women, despite being at a similar weight (Mack et al., 2004; Dawson, 1988). This may stem from this population's perception of

what is considered overweight or obese. Mack et al. found in their analysis of health beliefs, that nearly three times as many AA women as C women classified as obese (BMI > 30) desired no change in weight. According to Mack et al., significantly more AA women than C or H women were likely to report a perceived ideal weight in the obese category. Further, for many of those who desired weight loss, after losing the amount of weight that they wanted to lose, they would still be in the overweight category (BMI > 25).

Dawson (1988) theorized that AA women may evaluate their weight status against the weight of other AA women, who for the most part, are heavier than C women, rather than the dominant cultural ideal. In an exploratory study conducted by Williamson et al. (1992) examining weight loss attempts in AA, H, and C men and women, AA women on average had an ideal body weight that was 11 pounds heavier than C women. In some instances, AA women considered themselves to be at their ideal weight or to have no weight problems despite being above the CDC's body mass index measure (BMI) of < 25 or at least 17 to 20 pounds overweight according to the Metropolitan Ideal Weight Chart (Rand & Kuldau, 1990). This was especially notable in women ages 55-75.

AA women's satisfaction with higher body weights may make them less likely to attempt weight loss when they are at a weight that is considered by the dominant culture to be overweight or obese. However, when they perceive themselves as overweight, they are just as likely as C women to attempt weight loss (Dawson, 1988). This research suggests that AA women may not be aware of their weight status and are likely unaware

of their weight related health risks. There is a need to identify the development of health beliefs and behaviors concerning weight and weight loss in these women in order to understand how they contribute to current beliefs and behaviors. This may further assist with educating these women about their weight status and how it contributes to their health problems.

The beliefs and attitudes that AA possess about themselves, their health, and their health promoting behaviors are often passed on from generation to generation. Johnson and Broadnax (2003) suggested that the way that AA women view their bodies may have originated from Africa where a curvaceous figure is associated with prosperity and health. A woman who is heavy is a sign of strength and fertility in traditional African societies (Ofosu, Lafreniere, & Senn, 1998; Villarosa, 1994). Acceptance of a heavier weight may result in limited motivation to lose weight and decreased weight loss effectiveness (Kumanyika, 1993). Hence, beliefs may serve as barriers to weight loss. These culture specific beliefs and attitudes must be considered when examining behaviors of the AA culture, as assumptions about weight and health risks based on the dominant culture may not apply to minority populations (Kumanyika).

Culture has been found to have a significant impact on eating preferences and patterns. For many, certain foods may be symbolic of traditions, bonding, and a sense of family (Hargreaves et al., 2002). It was suggested that following recommendations for dietary practices such as eating a diet high in fiber and low in saturated fat and salt may

be difficult for African Americans as these recommendations conflict with African Americans tastes and preferences (Airhihenbuwa & Kumanyika, 1996).

One major theme that continued to emerge in the literature regarding AA eating patterns is the contextual aspect of eating behavior (Airhihenbuwa & Kumanyika, 1996; Hargreaves et al., 2002). Many African American's food preferences and eating patterns are often influenced by contextual, environmental, and cultural factors such as the place food is consumed, and with whom it is consumed (Kumanyika, 1993). Foods high in saturated fat and salt and low in fiber are often the center piece of social gatherings (Baturka et al., 2000). These types of environmental influences were found to affect both health enhancing and health detrimental behaviors.

Dietary factors are only part of the modifiable behaviors that are influenced by culture. Intentional moderate physical activity such as walking, running, and aerobics have also been found to decrease incidence of heart disease, hypertension and diabetes as well as assist with weight loss and maintenance (Mayo Clinic, 2004). As suggested earlier in this chapter, AA women often do not participate in regular exercise. Felton et al. (2002) found that only 5% of participants engaged in at least 30 minutes of intentional exercise at least 3 or more times per week in their focus group study examining the behavioral, psychosocial and environmental factors related to exercise in AA women at or below the poverty level. Although 77% of these women reported being physically active in the past, 80% dropped out within 6 months due to lack of

time or “feeling bad.” Further, one third of the women reported disapproval from family members of spending time being physically active.

One other major finding by Felton et al. (2002) was that advice to lose weight from a health provider was positively correlated with weight loss but not physical activity. This indicates that health providers may play an important part in encouraging AA women to lose weight but not with engaging in physical activity. Felton et al. concluded that encouragement from family members is a significant influence on physical activity in AA women. Significant health beliefs that were noted in this study is that 70% of the participants believed that regular physical activity reduced the incidence of major health problems such as hypertension and heart disease, as well as increased energy levels and weight loss. Both inactive and active women believed that physical activity had social benefits; although active women believed that it carried more physical benefits. This suggests that AA women may see some importance of engaging in physical activity; but may experience barriers, either perceived or actual, that impede consistent participation in regular exercise. Since this population could clearly benefit from physical activity and consuming the recommended servings of fruits, vegetables and whole grains, there is a need to examine factors that may impede their engagement in these health-enhancing behaviors.

SES and Education Levels

It would be remiss to discuss the factors that influence AA women’s behaviors aimed at weight loss or other health-enhancing behaviors without discussing such factors

as poverty which occurs often within this population (Kumanyika, 1993). Poverty has been positively associated with obesity in AA populations but even when this factor has been controlled, AA women continue to have higher rates of obesity and weight problems than C women and African American men (Rand & Kuldau, 1990). This suggests that poverty is only part of the factors that influence AA women's health behaviors.

A review of the literature revealed that those from lower socioeconomic levels (SES) or socioeconomic positions (SEP) tend to be more overweight or obese than those from upper SES/SEP levels (Baltrus et al, 2005; Fowler-Brown, Raghunathan, & Hoewyk, 2006). Since African Americans, and especially AA women, are more likely to be from a lower SES than Caucasians, this may partially explain their higher rates of overweight and obesity. Baltrus et al. conducted a comparative study of race differences in weight gain over a 34-year period because of SEP, as well as psychosocial and behavioral factors, in a group of AA and C men and women based on baseline weight. SEP was measured by: childhood SEP, education, occupation, and income; while psychosocial and behavioral factors included physical activity, cigarette smoking, alcohol consumption, depression, marital status, and number of children.

Baltrus et al. (2005) found that although all participants gained weight over time, AA women weighed more initially and gained more weight overtime. This higher amount of weight gain in AA women was mostly attributed to a combination of the SEP variables, with further influence from less activity levels and higher levels of alcohol consumption. Most notably, childhood SEP (measured by father's occupation) was the

most significant influence on lifetime weight gain in AA women. However, according to Baltrus et al., these factors still did not fully account for differences in body weight, suggesting other contributing variables to differences in weight status between AA and C women. Similar findings were obtained by James, Phelps, and Broth (2006) when they examined lifetime SEP in AA women. The data was obtained from a 2001 follow up interview derived from a 1988 study of risk factors for hypertension and related disorders in AA women ages 25 to 50. These researchers found that those from low childhood SEP homes were more likely to be obese in adulthood despite current SEP. This suggests that the factors that influence weight status in childhood may set the stage for lifetime weight status.

There is also some suggestion that those from lower SES/SEP levels, including those with less education, tend to be happier with their weight and more accepting of a larger body size, regardless of race, while those from upper and middle SES and SEP levels tend to be more dissatisfied, regardless of race (Caldwell, Brownell, & Wifley, 1997). Nonetheless, there has been conflicting findings in this area, as other studies have found that after controlling for SES/SEP levels, including education, there was still a difference between racial groups, with African Americans being more satisfied with their weight (Snooks & Hall, 2002; James, Phelps, & Bross, 2001). Once more, those from lower income levels and those with less than a high school education tend to have heavier body weights than individuals with higher income levels and a high school education and above (Proper, Cerin, Brown, & Owen, 2005). Rosenberg, Palmer, Adams-Campbell, and

Rao (1999) found in their examination of data from the AA Women's Health Study that although college educated women were less likely to be overweight and have hypertension, this was still a major concern within this population. Therefore SES/SEP levels and education levels should be considered when examining body image and weight status among AA women but should be interpreted with caution as their influence is still unclear.

Research Methods

This study utilized a quantitative survey research method. Quantitative survey research uses surveys to collect data to answer questions regarding attitudes, preferences, concerns or interests of a group of people using numeric representation (Gay & Airasian, 2000). This type of research attempts to determine whether there's a connection between two or more variables (Bagdoniene & Zemblyte, 2005). The assumption behind quantitative research is that the world is stable, constant, and has the ability to be measured (Gay & Airasian). Quantitative research deals with hypothesis testing that result in either accepting or rejecting a null hypothesis that is stated a priori (Ratnesar & Mackenzie, 2006).

Advantages to using quantitative research include being able to simultaneously collect information from a large sample in a relatively short period of time and the ability of the participants to remain anonymous (Gay & Airasian, 2000). A disadvantage is that it limits the ability of the researcher to obtain in-depth personal perspectives on the study matter (Bagdoniene & Zemblyte, 2005). A number of studies have utilized quantitative

research to examine health beliefs/behaviors. For example Blixen et al. (2006) utilized an exploratory study to examine perceptions of obesity and preferences for weight reduction interventions by AA and C women. An exploratory approach was also used by Underwood, Faan, and Powell (2006) to study the influence of religion/spirituality on health behaviors in African Americans which found that religion/spirituality positively influenced health behaviors. Holt et al. (2003) used an exploratory approach to examine spiritual LOC in AA women, which revealed a connection between internal LOC beliefs and spiritual LOC. The influence of social support on physical activity was examined through an exploratory study by Anderson et al. (2006), which suggested a connection between high self-regulation and social support, and an indirect relationship to physical activity.

Other methods have also been utilized to study health behaviors and attitudes. Peters, Aroian and Flack (2006) used focus interviews to explore attitudes and beliefs of African Americans regarding self-care behaviors for hypertension; common themes regarding generational beliefs were uncovered. Focus interviews were also utilized by Airhihenbuwa & Kumanyika (1996) in their attempts to understand the cultural aspects of AA eating patterns; key themes were association between food choices and being AA, context of eating, AA traditional food practices. Felton et al. (2002) used a focus group approach to examine the behavioral, psychosocial and environmental factors related to exercise in AA women. A connection between physical activity and reduced health risks

as well as the positive influence of physician encouragement from emerged from this research.

Summary

The literature revealed several variables of interest that may shed light on AA women's involvement in health-enhancing behaviors and how they may compare to C women, especially those aimed at obtaining and maintaining a healthy weight. This review revealed that the EHBM, along with a quantitative research approach, may address several key variables affecting the health beliefs of these women.

One of the main consistent findings from the review of the literature was that AA women many perceive barriers to eating a healthy diet and exercising. These barriers were both actual and perceived. However, it is unclear whether barriers are more of a problem in AA than C women. There is also an indication from the literature that AA women may not realize how susceptible they are to certain weight related diseases such as some cancers, although they are often aware of their risks for developing diseases commonly linked to African Americans such as Type 2 diabetes, stroke, heart disease, and hypertension. However, the connection between these conditions and weight is not as commonly known. It is also not known whether AA women's perception of susceptibility to weight related diseases differs from that of C women. This indicates a need for further research in this area.

The literature review also revealed that body image and perception of weight status can greatly influence whether AA women attempt weight loss. Since these women

may be less likely to view themselves as overweight, they may be close to the obese range before they realize that their weight is an issue. It also suggests a need to further explore whether these women realize and understand their weight status and whether this differs from that of C women.

The literature review revealed that modifying factors such as income levels and education levels should be considered or accounted for in studies examining health behaviors in AA and C women. However, their impact on health beliefs and behaviors aimed at weight loss or maintaining a healthy weight remains unclear.

Based on the results from the literature review, the EHBM may be a useful tool for examining health beliefs in AA and C women, as the perceptions, beliefs, and sociopsychological and demographic variables identified by the EHBM were also identified in studies not utilizing this model.

CHAPTER 3:

METHODS

Introduction

This chapter includes a description of the research design and approach that was used for this study as well as the rationale for why this design and approach were chosen. This chapter also includes a description of the setting and sample that consists of the population characteristics, eligibility criteria, and sampling method. Descriptions of the instruments that were used for data collection, the data collection process, and the data analysis are also included. Finally, measures that were taken to ensure participants' rights and protection are described.

Purpose of the Study

The purpose of this study was to examine AA women's perceptions regarding their weight locus of control, susceptibility to diseases due to weight, and barriers to engaging in eating/exercise behaviors relative to Caucasian women using the EHBM. In addition, this study sought to assess the impact of social support on adherence to USDA suggested eating/exercise behavior in AA females.

A quantitative research method was used to empirically assess the attitudes and beliefs of both AA and C women (Gay & Airasian, 2000). This type of method is often used to test theory and will be helpful in determining whether the theory behind the EHBM applies to the women in the study.

A survey research design was used to further understand AA and C female's beliefs and attitudes towards health behaviors aimed at weight loss or maintenance of a healthy weight. Survey research is an inexpensive way to obtain information about people's beliefs, attitiudes, and behaviors (Mitchell & Jolley, 2004). This type of research is often used when researchers

want to collect a lot of information on a large sample in a short amount of time (Mitchell & Jolley). A great deal of the previous research conducted on the beliefs and attitudes of AA women regarding weight and weight loss is qualitive in nature, which enabled the researchers to obtain themes based on individual responses (Baturka, Hornsby, & Schorling, 2000; Johnson & Nies, 2005; Young, Gittelsohn, Charleston, Felix-Aaron & Appel, 2001). Using a quantitative approach could add to this literature by exploring relationships between the variables that are found to influence AA women's health-enhancing behaviors.

Sample and Setting

Participants. The participants for the pilot study were a convenience sample of 10 women (AA, C, & Asian) ages 20- 65. The main study participants were a convenience sample of 76 AA and C women ages 20 -75, for a total of 86 participants. Weight classification was determined by asking the women to choose a weight category that described their weight as well asking for a self-report of weight and height. These numbers were then plugged into the BMI formula. This ensured that women who may not have perceived themselves as overweight or obese were classified as such (based on a BMI of 25 or greater). Participation was completely voluntary. Respondents were women recruited from AA churches and churches of a combination of races within a 50-mile radius of the Dallas, TX area. The population of the cities range from around 13,000 to around 60,000 with a majority of the AA and C women coming from either low to middle income homes with various levels of eduation. The average AA population for these cities is around 9% (U.S. Census Bureau, 2000). Females make up an average of about 55% of the population, with 73% being 18 or over. About 54% of females in these cities are married, 18% are single, 10% widowed, 11% divorced, and 2% separated. Around 70% of individuals in these targeted cities have at least a high school diploma with 15% below poverty level (U.S.

Census Bureau, 2000). There was very little variation between the characteristics of these towns; therefore the above averages may likely pertain to each town. The results of this study are expected to be generalizable to African American and Caucasian women of similar demographics living in cities with similar characteristics as these Texas towns.

The church was selected as a setting for this research as it was identfied by USDHHS (1985) as one of the places where the health disparities of African Americans can be addressed more effectively (others included families, schools, and small businesses). The church has also been identified by researchers as a place that holds prominance within the AA community and is viewed as a place of comfort and trust (Underwood & Powell, 2006). This makes the church an ideal setting for examing beliefs of attitudes in AA women. The beliefs and attitudes of C women were used in this study for comparison.

Sample Size. An a priori power analysis was conducted to determine an appropriate sample size. A minimum of 76 participants was needed based on the standard alpha (.05) and power level (.80) for social sciences (Cohen, 1988), and a medium effect size of .13. The effect size was determined by extracting correlations from articles conducting similar research. Sample size was obtained by using the tables and suggestions made by Cohen (1992) in his article on statistical power analysis.

Inclusion and Exclusion Criteria

1. AA and C women age 20 and above who attend one of the selected churches.
2. Able to read at least a 6^{th} grade level.
3. Able to give informed consent.
4. Able to speak and understand English.

Exclusion criteria:

1. Males.
2. Women under 20.
3. Women who are not AA or C.
4. Individuals unable to read or understand English.

Procedures

A pilot study was conducted prior to survey completion in order to determine reliabilities for the measures and to test study procedueres. Participants were recruited from one of the churches that volunteered to participate in the study. The surveys were completed after the Sunday church service following IRB approval to conduct research. Churches for the study were selected based on location, congregation size, and racial makeup of the congregation. Prior to survey completion the pastors of the churches were contacted in order to seek approval for recruitment efforts at their church. A contact person was identified at each location with the assistance of the researcher's mother and the pastors of the churches. This person was the secretary, office manager, or finance manger for the church. The contact persons were informed of the purpose and possible benefits of the study, which was trying to help with identifying ways to improve the health of AA women. They were provided with information about the study and the criteria for participation, which required the participant to be an African American or C woman, aged 20 and above, able to give informed consent, able to read and understand English. The identified contact person assisted with seeking participants by reading a letter to the congregation from the researcher that explained the study. Survey packets were left at the church that included a letter regarding confidentiality, instructions on survey completion, the DBS, Barriers to Physical Activity, Social Support for Physical Activity, Barriers to Eating Healthy,

Social Support for Eating Habits Surveys, the cover sheet soliciting demographics, and USDA Recommendations Checklist. Interested persons were asked to stay after church the following Sunday for further instructions and survey completion. Each contact person was provided with a set of instructions outlining procedures for completing the surveys in order to create a more standardized method of survey completion between sites. The contact person read the instructions and asked each person to sign an informed consent agreement. Participants were informed that survey information was confidential and instructed not to include self-identifying information on the packets. Data were collected at four churches. Participants filled out the surveys after Sunday service on that week for three of the churches and the following Sunday for the remaining church. Survey completion time was about 20 minutes with some participants taking slightly more or less time. The total data collection time was around three weeks.

Each packet was numbered as a way to identify each packet. No other identification was used. The contact person at each site was given an overview of the surveys so that they can be available to answer questions from participants. The researcher maintained frequent contact with contact persons throughout the data collection process. The survey packets were placed in sealed envelopes at the collection site and were either sent to the researcher or collected at the site. They were then placed in a locked file box at the researcher's home. Participants were given the number and name of a contact person at their local mental health clinic in case they became distressed after completion of the surveys and desired professional assistance (though this was not anticipated).

Instrumentation and Materials

The USDA Recommendations Checklist. The 2005 USDA Recommendations Checklist was used to measure adherence to USDA recommendations. The USDA Recommendations

Checklist is a self-made questionnaire designed for this study. This is an 11-item checklist that includes questions addressing exercise and nutrition activities. An example item is, *Do you engage in at least 30 minutes of moderate physical activity most days of the week (walking, aerobics, sports, dancing)?* The checklist prompts individuals to respond to questions with nominal measurements ranging from 3 (*always)* to 0 *(never)* or 2 (*yes*) to 0 (*no*). The scoring range is 0 to 32. The higher the score obtained on the USDA Recommendations Checklist, the higher the degree of adherence.

The Dieting Beliefs Scale. The Dieting Beliefs Scale (DBS) was used in this study to examine participant's beliefs about dieting and weight loss and to determine whether the participant had more of an internal or external weight locus of control. The DBS is a 16-item scale that includes equal numbers of internal and external items (Stotland & Zuroff, 1990). An example of an internal item is, *Having a slim body has nothing to do with luck.* An example of an external item is, *Most people are at their present weight because that is the weight level that is natural for them*. The scale prompts individuals to respond to questions with ordinal measurements ranging from 1 (*not at all descriptive of my beliefs*) to 6 (*very descriptive of my beliefs*). According to Stotland and Zuroff, the higher the score on the scale, the more an internal weight locus of control is present. Scores can range from 16 to 96.

In a study conducted to examine the reliability of the DBS, Stotland and Zuroff (1990), reported that 13 of the 16 items had item-total correlations of .2 or greater and a Cronbach's alpha of 68. The reliability was .81 over an approximately 6-week period with high test-retest reliability as well as a moderate internal consistency (Stotland & Zuroff). Factors related to an internal weight locus of control on the DBS were cognitive restraint, self-perception of weight problem, self-perception of success at previous diets, body mass, and dieting (Stotland &

Zuroff). This was confirmed by similar findings in an exploratory study by Furnham and Atkins (1997) that examined internal versus external beliefs concerning control of personal weight. Furnham and Atkins found that internals were more to perceive their weight as a problem and more likely to diet.

The Social Support for Eating Habits Survey. The Social Support for Eating Habits Survey measured participant's perceptions regarding social support for eating a healthy diet. The Social Support for Eating Habits survey is designed to assess the types of support that individuals receive from family and friends regarding their eating behaviors (Sallis et al. 1987). A sample item from the Support for Eating Habits Survey is, *During the past three months, my family (or members of my household) or friends: Reminded me not to eat high fat, high salt foods*. The scales prompt individuals to respond to statements with nominal measurement ranging from 1 (*none* or *does not apply*) to 5 (*very often*). The scores are summed and scored separately for family and friends. The higher the score on the eating habits survey items 1 to 5, the higher the perceived encouragement for eating healthy; the higher the score on items 6 to 10, the higher amount of perceived discouragement from family and friends.

A study conducted to examine the reliability and validity of the Social Support for Eating Habits Survey by Sallis et al. (1987) found that test-retest reliabilities of the factors included in the surveys ranged from 0.55 to 0.86 with internal consistencies having alpha levels ranging from 0.80 to 0.83. According to Sallis et al., intercorrelations between factors within scales were moderate, ranging from 0.38 to 0.45, which they suggest may indicate that they measure distinct concepts. The researchers noted that positive verbal support emerged as most significant on this scale while active participation was most significant for exercise participation as addressed on the scale below. Sallis et al. suggested that based on these findings, the type of support that is

needed for a behavior may depend on the behavior that is being supported. The final scale includes only those items that had eigen values greater than 2.0.

The Social Support for Physical Activity Survey. The Social Support for Physical Activity Survey measured participant's perceptions regarding social support for engaging in exercise. The Social Support for Physical Activity Survey is designed to assess the types of support that individuals receive from family and friends regarding their exercise habits. A sample item from this survey is, *During the past three months, my family (or members of my household) or friends: Gave me encouragement to stick with my exercise program*. This scale prompts individuals to respond to statements with nominal measurement ranging from 1 (*none or does not apply*) to 5 (*very often*).

According to Sallis et al. (1987), the higher the score on items *a* to *f* and *j* to *m*, the higher the perceived family and friend's participation/support for exercise. Higher scores on items g to *h* indicate perceived punishment/criticism from family for engaging in exercise and item *i* suggests perceived reward from family for engaging in exercise (the developer suggested that *g* to *i* not be scored for friends as they did not emerge in the factor analysis). Scores range from 23 to 115 with the combined scores for both scales.

A study conducted to examine the reliability and validity of the Social Support for Exercise (now called Social Support for Physical Activity) Survey by Sallis et al. (1987) found that test-retest reliabilities of the factors included in the surveys ranged from 0.55 to 0.86 with internal consistencies having alpha levels ranging from 0.61 to 0.91. According to Sallis et al., intercorrelations between factors within scales were moderate, ranging from 0.38 to 0.45, which they suggest may be indicative that they measure distinct concepts. Active participation was most significant for exercise participation. A study conducted by Eyler et al. (1999) using the

Social Support for Exercise Survey in minority women found similar intercorrelations to Sallis et al. ranging from 0.36 to 0.55 with internal consistency for the whole scale using Cronbach's alpha being 0.70.

The Barriers to Physical Activity Survey. The Barriers to Physical Activity Survey was used in this study to measure the participants' perception of barriers to engaging in physical activity. The Barriers to Physical Activity Survey is a 25-item scale that lists statements about things that may impede participant's engagement in physical activity. Responses are divided into five categories: worries, excuses, demands, aversiveness, and inconvenience. The following question is used to elicit responses, *How often do the following prevent you from getting physical activity?* Sample responses are, *I do not enjoy physical activity* or *I do not have anyone to do physical activities with me.* The responses are listed as nominal measurement with answers ranging from 0 (*never*) to 4 (*very often*). According to Sallis et al. (1999) the items on the Barriers to Physical Activity Scale are reverse scored with the higher the score on the survey, the fewer barriers the participant perceives to engaging in physical activity. Scores can range from 0 to 96.

In a study designed to examine the reliability and validity of the Barriers to Physical Activity Survey, Sallis et al. (1995) found that test-retest intraclass reliabilities ranged from .79 (*inconvenience*) to .61 (*worries*). The reliability for the overall barriers score was .79.

Barriers to eating a healthy diet. Barriers to eating a healthy diet was measured by using a set of questions derived from the HBM. These questions were created by Chew, Palmer, Slonska and Subbiah (2002) in order to examine health knowledge, health beliefs, and health behavior in their study participants. These questions were placed under the title "efficacy," and include five Likert-scale items. The respondents were asked to rate whether they agreed or

disagreed with two “benefits” and three “barriers” (Chew et al.). Responses are listed as nominal measurement with answers ranging from 5 (*strongly disagree*) to 1 (*disagree*). An example of a benefit item is, *A healthy diet offers no guarantee and is not worth it.* Perceived barriers to eating a healthy diet are measured by such responses as, *A healthy disease and cancer prevention diet would take too much time* or *a healthy diet would make me give up my favorite foods.* Scores for these questions can range from 5 to 25. According to Chew et al., higher scores indicates high efficacy. The Cronbach’s alpha reliability coefficient for efficacy was .75 (Chew et al.).

Perceived susceptibility to weight related disease. Perceived susceptibility to weight related disease was measured by a set of questions created by Gross el al. (2005) in their study on body image and health perceptions among graduating seniors from a historically African American college. Respondents were asked whether they strongly agreed or disagreed to four questions that measured weight related health risks. Responses are listed as ordinal measurement with answers ranging from *a* (*strongly disagree*) to *e* (*strongly disagree*). The following is an example of a question used to elicit a response, *I am at greater risk for developing heart disease because of my weight.* Gross et al. measured the responses by creating a summary variable for participants who perceived risk to disease due to weight and compared them to those who did not perceive a risk for weight related disease. A Cronbach's alpha coefficient for perceived susceptibility to weight related disease was used on these questions for this study in order to test reliability.

Research Questions

The following research questions guided the data collection process:

1. Do AA women perceive more locus of control or less locus of control over their weight (as determined by the DBS) than do C women?

2. Do AA women believe that they are less susceptible to weight related disease than C women?

3. Do AA women perceive more barriers to exercising (as determined by the Barriers to Physical Activity Survey) and eating healthy (as determined by the Barriers to Eating Healthy Questionnaire) than do C women?

4. Does the level of perceived support (as determined by the Social Support for Eating Habits and Social Support for Physical Activity Surveys) for AA women correlate with their compliance to weight loss suggestions (as determined by the USDA Recommendations Survey)?

Data Analyses

Descriptive statistics were used in this study to assess the means, standard deviation, and ranges of demographic variables of the participants which include age, income, highest education level attained, weight, height, weight classification, marital status, and religious affiliation. A zero-order correlation was run in order to examine the relationship between all of the independent (race and perceived social support), dependent (adherence to USDA recommendations, perceived susceptability to weight related disease, perceived barriers to physical activity, perceived barriers to eating a healthy diet, perceived social support, and weight locus of control) and demographic variables (age, income, education level, etc.). Demographic variables were selected a priori and were included in order to identify any potential confounds bewteen the independent and dependent variable relationships. Inferential statistics was used in this study to test the hypotheses.

Null Hypothesis 1: There is no relationship between race and degree (more or less) of weight locus of control (as measured by the DBS).

Research Hypothesis 1: There is a relationship between race and degree (more or less) of weight locus of control (as measured by the DBS).

Data Analysis 1: Race and weight locus of control was entered in a between subjects analysis of variance (ANOVA) in this study to predict the relationship between the two.

Null Hypothesis 2: There is no relationship between race and perceived susceptibility to weight related diseases (as measured by the perceived susceptibility to weight related diseases questions).

Research Hypothesis 2: There is a relationship between race and perceived susceptibility to weight related diseases.

Data Analysis 2: Race and perceived susceptibility to weight related diseases was entered in a between subjects analysis of variance (ANOVA) to predict the relationship between the two.

Null Hypothesis 3: There is no relationship between weight race and amount of perceived barriers to exercising and eating a healthy diet (as measured by the Barriers to Physical Activity and Barriers to Eating Healthy Surveys)

Research Hypothesis 3: There is a relationship between race and amount of perceived barriers to exercising and eating a healthy diet.

Data Analysis 3: Race and perceived barriers to exercising and eating healthy was entered in a between subjects analysis of variance (ANOVA) to predict the relationship between these variables.

Null Hypothesis 4: There is no relationship between the level of perceived social support for exercising and eating healthy (as measured by the Social Support for Exercise and Social Support for Eating Habits Surveys) in AA women and adherence to USDA recommendations (as measured by the USDA Recommendations Questionnaire).

Research Hypothesis 4: There is a relationship between perceived social support for exercising and eating healthy and adherence to USDA recommendations in AA women.

Data Analysis 4: Perceived support for exercise and eating healthy and adherence to USDA recommendations was entered in a linear-regression analysis using the scores of AA women to predict the relationship between the two.

Measures Taken for Protection of Participants

Institutional review board (IRB) approval (# 06-27-08-0253237) was obtained prior to conducting research. Participants were informed that their participation in this study was completely voluntary and that they could withdraw at any time without penalty. They were also instructed to leave names off of the packets and return envelopes so that all information could remain anonymous. Participants were asked to read and sign an informed consent form that outlined the ethical guidelines of this study. None of the measures that were used in this study was anticipated to cause distress or harm to participants. However, as mentioned above, participants were given the number and name of a contact person at their county mental health agency (located in both cities) in case they became distressed after completion of the surveys and desired professional assistance.

CHAPTER 4:

RESULTS

Introduction

This chapter reports the results of the statistical analyses proposed in the previous chapter, including pilot and main study data. Sample demographic characteristics and results of bivariate, univariate, and multivariate analyses will be discussed. The following research questions were answered as they pertain to the study participants: (a) Do AA women perceive more locus of control or less locus of control over their weight than do C women?,(b) do AA women believe that they are less susceptible to weight related disease than C women? , (c) do AA women perceive more barriers to exercising (as determined by the Barriers to Physical Activity Survey) and eating healthy (as determined by the Barriers to Eating Healthy Questionnaire) than do C women?, and (d) does the level of perceived support (as determined by the Social Support for Eating Habits and Social Support for Physical Activity Surveys) for AA women correlate with their compliance to weight loss suggestions (as determined by the USDA Recommendations Survey)?

Pilot Study

A pilot study was conducted in order to determine estimates of internal consistency of the research instruments. Participants were recruited from one of the churches that originally agreed to participate in the main study. These participants' data were used for the pilot study instead of the main study. The researcher identified a contact person who read a letter to the church congregation written by the researcher seeking participants. This was the same procedure used in the main study. Ten participants volunteered and were included in this study (8 African Americans, 1 Caucasian, and 1 Asian).

A Cronbach's alpha was run on each of the instruments to determine their reliabilities. Cronbach's alpha measures how closely related two variables are to one another and to the instrument as a whole (Allen & Yen, 2002). By convention, a measure of .70 or above is considered adequate for use in studies in the social sciences (Allen & Yen). Reliabilities for the instruments using pilot study data ranged from .71 to .86. See Table 1 for reliabilities on each measure.

Table 1

Pilot study measures reliabilities

Measure	Cronbach's alpha
Dieting Beliefs Scale	.72
USDA Recommendations	.75
Social Support for Eating Habits	.78
Social Support for Physical Activity	.84
Barriers to Physical Activity	.86
Barriers to Eating Healthy	.77
Perceived Susceptibility to Disease	.71

Main Study

Participants

For the main study, 92 surveys were returned; however, 16 were excluded because they did not fit the gender or race inclusion criteria outlined in chapter 3. Seventy-six participant surveys were used for this study, with 51 (67.1%) being AA and 25 (32.9%) being C. A post-hoc analysis was used to determine whether the power used in the study was comparable to that suggested in chapter 3 (.80). An analysis was conducted for Hypotheses 1 through 4b. Based on the effect sizes of .13, .01, .00, .18, .00, and .01, the power used in this study was less than .50.

Preliminary Analyses

The SPSS program was used to analyze survey data and results. Estimates of internal consistency were also obtained for the main study using Cronbach's alpha. Reliability for the five surveys and two sets of questions from previous studies ranged from .64 to .83, revealing adequate reliability for each of the instruments (Allen & Yen, 2002). See Table 2 for a list of scale realibility coefficients for each measure.

Table 2

Main study measures reliabilities

Measure	Cronbach's alpha
Dieting Beliefs Scale	.64
USDA Recommendations	.72
Social Support for Eating Habits	.81
Social Support for Physical Activity	.79
Barriers to Physical Activity	.87
Barriers to Eating Healthy	.78
Perceived Susceptibility to Disease	.83

Measures

The Dieting Beliefs Scale. Weight locus of control was measured by the Dieting Beliefs Scale (DBS). The higher the score on the DBS, the more of an internal weight locus of control is present. Scores can range from 16 to 96. In the current sample the mean score was 57.83 with a standard deviation of 11.22. The mean score for AA participants was 58.10 (*SD* = 12.04) and 57.28 (*SD* = 9.53) for the C participants. Scores ranged from 20 to 71. The standard deviation was 11.22. The reliability obtained for this study sample using Cronbach's alpha was .64, compared to.68 obtained by the scale developers (Stotland & Zuroff, 1990).

The Social Support for Physical Activity Survey. The Social Support for Physical Activity Survey (SSPA) measures participant's perceptions regarding social support for exercising. The higher the score on the SSPA, the higher the perception of family and friends support for physical activity. Total scores can range from 26 to 130. Scores for this study ranged from 23 to 91 with a mean score of 58.51 and a standard deviation of 14.02. The mean score was 58.31 (*SD* =14.90) for AA participants and 58.92 (*SD* = 12.31) for C participants. The Cronbach's alpha for this study was .79, which compared to the range of .61 to .91, obtained by the developers (Sallis et al., 1987). This range included subscale reliabilities.

The Social Support for Eating Habits Survey. The Social Support for Eating Habits Survey (SSEH) measures participant's perceptions regarding social support for eating a healthy diet. The higher the score on the SSEH, the higher the perception of family and friends support for eating habits. Total scores can range from 20 to 100. Scores for this study ranged from 30 to 71 with a mean of 48. 35 and a standard deviation of 13.49. Means were broken down by race. The mean score for AA participants was 48.35 (*SD* = 13.49) and the mean score for C participants was 49.84 (*SD* = 8.16). The Cronbach's alpha for this study was .81, which falls within the range (.80 to .83) obtained from the scale developers (Sallis et al., 1987).

The USDA Recommendations Checklist. The 2005 USDA Recommendations Checklist was used to measure adherence to USDA recommendations. The higher the score on the USDA Recommendations Checklist, the higher the degree of adherence to these suggestions. Scores can range from 0 to 47. Scores for this study ranged from 8 to 43 with the mean score being 27.78 and the standard deviation being 8.20. The Cronbach's alpha for this study was .72, which is comparable to the measure obtained from the pilot study that tested its reliability (.75).

*The Barriers to Physical Activity Survey***.** The Barriers to Physical Activity Survey (BPA) was used in this study to measure the participant's perception of barriers to engaging in physical activity. The higher the score on the BPA, the higher the perceived barriers to physical activity. Scores can range from 0 to 96. Scores for this study ranged from 11 to 73 with the mean score being 37 and the standard deviation being 18.10. The mean score for AA participants was 35.27 (*SD* =19.36) and 40.56 (*SD* =14.95) for C participants. The Cronbach's alpha for this study was .87, which is consistent with the measure of .79 obtained by the developers (Sallis et al. 1995).

Barriers to Eating a Healthy Diet. Barriers to eating a healthy diet was measured by using a set of questions derived from the HBM created by Chew, Palmer, Slonska and Subbiah (2002) in order to examine health knowledge, health beliefs, and health behavior in their study participants. Scores for this study ranged from 5 to 20 with the mean score being 13.80 and the standard deviation being 5.77. The mean score for AA participants was 13.82 (*SD* = 5.87) and 13.76 (*SD* = 5.68) for C participants. The Cronbach's alpha for this study was .78, which compares to a measure of .75 obtained by the developers (Chew et al., 2002).

Perceived Susceptibility to Weight Related Diseases. Perceived susceptibility to weight related disease was measured by a set of questions created by Gross et al. (2005) in their study on body image and health perceptions among graduating seniors from a historically AA college. Respondents were asked whether they strongly agreed or disagreed to four questions that measured weight related health risks. Scores can range from 0 to 16. Scores for this study ranged from 0 to 16, with a mean score of 6 and a standard deviation of 4.91. The mean score for AA participants was 6.51 (*SD* = 4.40) and 6.36 (*SD* = 5.91) for C participants. The Cronbach's alpha for this study was .83. No prior reliabilities for this scale were available.

Means and Standard Deviations

Means and standard deviations were obtained on continuous data and frequencies were obtained for categorical data. The average age for participants was 42.98 years. The average BMI was 27.77, which is slightly higher than the national average BMI for women (26.5) as reported by CDC (2004). Table 3 further summarizes this information.

Table 3

Demographic variables of African American and Caucasian participants

Variable	Mean	Standard Deviation	Range
Age	42.93	13.38	20-75
Weight [a]	175.39	55.69	110-400
BMI[b]	27.77	9.86	16-71

Note. Total number of participants = 76.
a. One person omitted weight in this group. b. BMI was mean based on 75 participants since 1 person omitted her weight.

Means and standard deviations for AA versus C participants were also obtained. The mean age, number of children, and BMI was similar for these two groups. The largest difference between African Americans and Caucasians was with weight. The mean weight for African Americans was 179.20 versus 167.76 for Caucasians. Table 4 further summarizes this information.

Table 4

Demographic variables of participants by race

Variable	Mean		Standard Deviation		Range	
	African American	Caucasian	African American	Caucasian	African American	Caucasian
Age	42.98	42.84	13.74	12.89	20-75	25-74
Weight [a]	179.20	167.76	58.64	49.50	110-400	112-320
BMI[b]	27.98	27.37	10.11	9.53	16-71	19-63

Note. Total number of participants = 76
a. One person omitted weight in this group. b. BMI mean was based on 75 participants since one person omitted her weight.

Demographic Frequency Characteristics

Ninety-eight percent of the participants had at least a high school diploma and 40% had college degrees. Household income levels ranged from below $20,000 (25%) to above $100,000 (4%). Thirty-four percent of the participants were married, 31% were single, while the remaining 25% were separated, divorced, or widowed. A little over 47% of the participants were normal weight based on their weight and height reports, while the same percent of participants were either overweight (20.3%) or obese (27%). This is consistent with data from CDC (2000), which listed the national average for normal weight women as 46.9%, overweight as 25.7%, and obese as 25.5. These demographic frequency characteristics are summarized in Table 5.

Table 5

Demographic frequency information for participants

Variable	Demographic	
	%	*n*
Marital Status		
Single	31.6	24
Separated	7.8	6
Widowed	10.5	8
Divorced	14.4	11
Married	35.5	27
Education		
No Diploma	2.6	2
H.S. Graduate	32.9	25
Some College	18.4	14
Associates	17.1	13
Bachelors	17.1	13
Graduate	10.5	8
Other	1.3	1
Income		
<$20,000	32.9	25
$20,000-$40,000	21.1	16
$40,001-$60,000	21.1	16
$60,001-$80,000	21.5	11
$80,001-$100,000	2	2.6
> $100,000	3	3.9
Weight Classification		
Underweight	5.4	4
Normal Weight	47.3	35
Overweight	20.3	15
Obese	27	20
Race		
African American	67.1	51
Caucasian	32.9	25

Note. Number of African Americans = 51. Number of Caucasians = 25.
Percentages are based on the racial group.

When comparing continuous data of African Americans and Caucasians, more Caucasians than African Americans were married (56% versus 25%). Thirty-six percent of AA participants had a college degree, while 46% of C participants had college degrees. The majority of AA and C participants had income levels from below $20,000 to $80,000. Table 6 lists the frequencies for AA versus C participants.

Table 6

Frequency information for African American versus Caucasian American women

Variable	African American Demographic		Caucasian American Demographic	
	%	*n*	%	*n*
Marital Status				
Single	33.3	17	28	7
Separated	9.8	5	4	1
Widowed	15.7	8	0	0
Divorced	15.7	8	12	3
Married	25.5	13	56	14
Education				
No Diploma	0	0	8	2
H.S. Graduate	39.2	20	20	5
Some College	15.7	8	24	6
Associates	13.7	7	24	6
Bachelors	19.6	10	12	3
Graduate	9.8	5	12	3
Other	2	1	0	1
Income				
<$20,000	33.3	17	32	8
$20,000-$40,000	21.6	11	20	5
$40,001-$60,000	15.7	8	32	8
$60,001-$80,000	21.6	11	12	3
$80,001-$100,000	2.0	1	4	1
> $100,000	5.9	3	0	0
Weight Classification[a]				
Underweight	7.8	4	N/A	N/A
Normal Weight	39.2	20	60	15
Overweight	17.6	9	24	6
Obese	31.4	16	16	4

Note. Number of African Americans = 51. Number of Caucasians = 25.
Percentages are based on the racial group. a. calculations based on 49 participants due to 2 participants omitting weight.

Data Analyses

A *t* test for independent means was run on the main study variables in order to compare the means for AA and C participants in regards to USDA Recommendations scores, Social Support for Eating Habits scores, Social Support for Physical Activity scores, Barriers to Physical Activity scores, Dieting Beliefs scores, Perceived Susceptibility to Weight Related Diseases scores, and Barriers to Eating Healthy scores. The homogeneity of variances were evaluated using Levene's test, which was not significant for USDA Recommendations scores (p = > .05), Social Support for Physical Activity scores
(p = > .05), Barriers to Physical Activity scores (p = > .05), Perceived Susceptibility to Weight Related Diseases score (p = > .05), and Barriers to Eating Healthy scores (p = > .05). Therefore, the homogeneity of variance assumption was supported for these variables. However, there was a mean difference detected between the Social Support for Eating Habits mean scores (p = < .05) and Dieting Beliefs mean scores, suggesting that this assumption was violated for these variables.

The results of the *t* test revealed no significant difference in the means for adherence to USDA Recommendations scores t (74) = 1.05, ns. The results of the *t* test revealed no significant difference in the means for Social Support for Eating Habits scores t (74) = -.50, ns or the Social Support for Physical Activity scores t (74) = -1.76, ns. Further, there was no significant difference in the means for Barriers to Physical Activity Scores t (74) = -1.19, ns or the Dieting Beliefs scores t (74) = .29, ns. Finally, there were no significant differences in the means for the Perceived Susceptibility to Weight Related Diseases scores t (74) = .12, ns or the Barriers to Eating Healthy scores t (74) =.04, ns. These results are presented in Table 7.

Table 7

t test for independent means for study variables

Variable	Levene's Test		*t* test for Equality of Means			
	f	*p*	*t*	*df*	*p*	Mean difference
USDA	.64	.42	1.05	74	.29	2.11
Social Support-Eating	9.33	.00	-.50	74	.61	-1.48
Social Support-Exercise	.47	.49	.176	74	.86	-6.06
Barriers -Exercise	3.46	.06	1.19	74	.23	-5.28
Dieting Beliefs	1.06	.30	.29	74	.76	.81
Weight Related Diseases	9.73	.00	.12	74	.90	.15
Barriers - Eating Healthy	.13	.71	.04	74	.96	.06

Zero-Order Bivariate Correlation for Study Variables

Next, two zero- order correlations were run, one for all participants to obtain potential covariates for Hypotheses 1 through 3b and one for AA females only in order to obtain potential covariates for the hypotheses that addressed this population only (4a and 4b). Table 8 presents significant correlations for all participants at the $p < .05$ level. Weight was inversely correlated with income level r (76) = -.23, $p < .05$. Adherence to USDA recommendations was inversely correlated with perceived susceptibility to weight related diseases r (76) = -.26, $p < .05$. There was a negative correlation between perceived susceptibility to weight related disease and barriers to physical activity r (76) = -.36 $p < .05$. In addition, weight locus of control (as measured by the DBS) was inversely correlated with perceived barriers to eating healthy.

Table 8

Correlations between variables for all participants (N=76)

Variable	1	2	3	4	5	6	7	8	9	10
1. Race		-.06	-.22	.13	-.01	-.09	-.09	-.03	-.12	-.05
2. Income			.24*	-.28*	-.12	-.23*	-.43	.20	.29*	-.18
3. Height				-.22	.05	-.02	-.29*	-.00	.14	-.14
4. Barriers to Exercise					.25*	.39	.42	-.29	-.35	.49
5. Susceptibility to Disease						.51	.46	-.07	-.25*	-.18
6. Weight							.76	-.06	-.32	.00
7. Weight Classification								-.11	-.36	.04
8. Dieting Beliefs (WLOC)									-.12	-.25*
9. USDA Recommendations										-.01
10. Barriers to Eating Healthy										

* Significant $p < .05$

Table 9 presents significant correlations for all participants at the $p < .01$ level. Race was positively correlated with religious affiliation r (76) = .41, $p < .01$. Age was positively correlated with weight r (76) =.39, $p < .01$; BMI r (76) = .34, $p < .01$; dieting beliefs r (76) = .35, $p < .01$; and barriers to exercise/physical activity r (76) = .50, $p < .01$. Dieting beliefs and barriers to physical activity were inversely correlated r (76) = -.29, $p < .01$. Weight was inversely correlated with USDA recommendations r (76) = -.32, $p <.01$. BMI was positively correlated with barriers to exercise/physical activity r (76) = .40, $p < .01$ but inversely correlated with USDA recommendations r (76) = -.31, $p < .01$. Social support for eating healthy was positively correlated with social support for physical activity r (76) = .55, $p < .01$ and weight locus of control (as measured by the DBS). Barriers to exercise/physical activity was inversely correlated with adherence to USDA recommendations r (76) = -.35, $p < .01$ and weight locus of control r = (76)-.29, $p < .01$.

Table 9

Correlations between variables for all participants (N=76)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age		.39**	.37**	.41**	.34**	-.00	.01	.00	-.14	.35**	-.02	-.17	.50**	-.16
2. Weight			.76**	.68**	.93**	-.09	.10	-.18	-.13	-.06	-.02	-.23	.39	-.32**
3. Weight Class-Actual				.70**	.80**	-.09	.09	-.25	-.19	-.11	-.29*	-.43**	.42**	-.36**
4. Weight Class-Perceived					.66**	-.11	-.01	-.06	-.02	-.20	.09	-.39**	.38**	-.37**
5. BMI						-.03	.16	-.20	-.20	-.08	-.32**	-.33**	.40**	-.31**
6. Race							.41**	.05	.02	-.03	-.22	-.06	.13	-.12
7. Religious Affiliation								-.07	-.12	.17	-.14	.03	.00	-.21
8. Social Support for Eating Healthy									.64**	-.23	.00	-.06	.09	.16
9. Social Support for Exercise										.02	.12	-.08	-.10	.09
10. Dieting Beliefs (WLOC)											-.00	.20	-.29**	-.12
11. Height												.24	-.22	.14
12. Income Level													-.28	.29
13. Barriers to Exercise														-.35**
14. USDA Recommendations														

** Significant p < . 01

Correlations for AA participants only, revealed more significant correlations, than with those for all participants. Age was positively correlated with weight r (51) =.29, $p < .05$ and perceived susceptibility to weight related diseases r (51) = .30, $p < .05$. It was inversely correlated with weight locus of control r (51) = .29, $p < .05$. Income was positively correlated with adherence to USDA recommendations r (51) = .34, $p < .05$ and inversely correlated with barriers to exercise r (51) = -.33, $p < .05$. Barriers to exercise/physical activity was also inversely correlated with USDA recommendations r (51) = -.29, $p < .01$, education r (51) = -.34, $p < .05$ and weight r (51) = -.27, $p < .01$. Dieting beliefs was inversely correlated with social support r (51) = -.31, $p < .01$ Table 10 summarizes these results.

Table 10

Correlations between variables for African American participants (N=51)

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Age		.29*	-.27*	.35*	.30*	.25	-.23	-.29*	.06	.53	-.08	.30*
2. Weight			-.10	.66	.73	.93	-.22	.07	-.14	.47	-.42	.59
3. Education Level				-.32*	-.30*	-.23	.67	.51	-.09	-.34*	.10	-.07
4. Weight Class-perceived					.69	.64	-.51	-.05	-.03	.42	-.50	.43
5. Weight Class-actual						.79	-.49	-.02	-.22	.47	-.42	.60
6. BMI							-.35	-03	-.17	.47	-.43	.65
7. Income								.17	-.05	-.33*	.34*	-.24
8. Dieting Beliefs (WLOC)									-.31*	-.20	-.17	-.05
9. Social Support for Eating Healthy										.08	.23	-.14
10. Barriers to Exercise											-.29*	.41
11. USDA Recommendations												-.43
12. Susceptibility to Disease												

* Significant $p < .05$

At the $p < .01$ level, age was positively correlated with barriers to exercise r (51) = .53, $p < .01$. Weight was positively correlated with perceived barriers to weight related diseases r (51) = .59, $p < .01$ and perceived barriers to exercise r (51) = .47, $p < .01$. Weight was inversely correlated with adherence to USDA recommendations r (51) = -.42, $p < .01$. Barriers to exercise was also positively correlated with perceived susceptibility to weight related disease r (51) = .41, $p < .01$. Education level was positively correlated with weight locus of control r (51) = .51, $p < .01$. Dieting beliefs was inversely correlated with social support for eating healthy r (51) = -.31, $p < .01$ There was an inverse relationship between adherence to USDA recommendations and perceived susceptibility to weight related diseases r (51) = -.43, $p < .01$. Table 11 summarizes these results.

Table 11

Correlations between study variables for African American participants (N=51)

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Age		.29	-.27	.35	.30	.25	-.23	-.29	.06	.53**	-.08	.30	-.00	.18	-.18
2. Weight			-.10	.66**	.73**	.93**	-.22	.07	-.14	.47**	-.42**	.59**	-.06	.022	-.19
3. Education Level				-.32	-.30	-.23	.67**	.51**	-.09	-.34	.10	-.07	.04	-.25	.03
4. Weight Class-perceived					.69**	.64**	-.51**	-.05	-.03	.42**	-.50**	.43**	.00	-.177	.00
5. Weight Class-actual						.79**	-.49**	-.02	-.22	.47	-.42**	.60**	-.16	.11	.08
6. BMI							-.35*	.03	-.17	.47**	-.43**	.65**	-.15	.04	00
7. Income								.17	-.05	-.33**	.34**	-.24	-.04	-.25	-.07
8. Dieting Beliefs (WLOC)									-.31*	-.20	-.17	-.05	-.02	-.22	.23
9. Social Support for Eating Healthy										.08	.23	-.14	.64**	.11	-.03
10. Barriers to Exercise											-.29	.41**	-.11	.50**	-.04
11. USDA Recommendations												-.43**	.11	.06	-.23
12. Susceptibility to Disease													-.16	-.04	.02
13. Social Support for Exercise														-.05	.08
14. Barriers to Eating Healthy															.01
15. Religious Affiliation															

** Significant $p < .01$

Main Analyses

The next phase of the analyses involved a univariate analysis of the six research questions. A between subjects analysis of variance was used to predict the relationship between the independent variables (AA versus C and social support) and each dependent variable, including weight locus of control, perceived susceptibility to weight related diseases, perceived barriers to physical activity, and perceived barriers to eating a healthy diet. A linear- regression analysis was used to assess the relationship between perceived social support for exercising, perceived support for eating healthy (independent variables), and adherence to USDA recommendations (dependent variable) in the AA participants only.

Outcome

Hypothesis 1

The first hypothesis that guided this research stated that there would be a relationship between race and degree (more or less) of weight locus of control, as measured by the DBS. The null hypothesis suggested that there was no relationship between race and weight locus of control. This hypothesis was tested by entering race and weight locus of control in an ANOVA to predict the relationship between the two. This test was not found to be statistically significant at an alpha level of .05, F (1, 74) = 0.08, ns. This indicates that the mean score for AA women on the DBS was not significantly different from the mean score obtained by C women; therefore the researcher failed to reject the hypothesis. Results are summarized in Table 14.

Hypothesis 2

The second hypothesis stated that there would be a relationship between race and perceived susceptibility to weight related diseases, as measured by the perceived susceptibility to weight related diseases questions. The null hypothesis indicated that there was no difference between race and perceived susceptibility to weight related diseases. This hypothesis was tested by entering race and perceived susceptibility to weight related diseases in an ANOVA to predict the relationship between the two. The ANOVA indicated that there was no significant difference between the mean score for AA women and C women on perceived susceptibility to weight related diseases (alpha level .05, F (1, 74) = 0.15, ns). The researcher failed to reject the null hypotheses based on these results. Results are summarized in Table 14.

Hypothesis 3a

The third hypothesis consisted of two parts that addressed barriers to engaging in behaviors (eating healthy and physical activity) aimed at losing or maintaining ones weight. The first part of the third hypothesis (3a) stated that there would be a relationship between race and amount of perceived barriers to eating healthy, as measured by the Barriers to Eating Healthy questions. The null hypothesis stated that there was no relationship between race and amount of perceived barriers to eating healthy. This portion of the hypothesis was tested by entering race and barriers to eating healthy in an ANOVA to predict the relationship between these variables. This test was not found to be statistically significant at an alpha level of .05, F (1, 74) = 0.00, ns. This indicates that the mean scores for AA women on the measure for eating a healthy diet were not

significantly different from the mean scores obtained by C women. Based on these results, the researcher failed to reject the null hypothesis. Results are summarized in Table 14.

Hypothesis 3b

The second portion of the third hypothesis stated that there would be a relationship between race and amount of perceived barriers to exercising, as measured by the BPA Survey. The null hypothesis stated that there was no relationship between race and amount of perceived barriers to exercising. This hypothesis was tested by entering race and barriers to exercising in an ANOVA to predict the relationship between these variables. There was not a significant difference found (alpha level .05, F {1, 74} = 1.43, ns) when using the BPA Survey as the dependent variable. This indicates that the mean scores for the AA participants on the BPA Survey were not significantly different from the mean scores obtained by the C participants. Based on these results, the researcher failed to reject the null hypothesis. See Table 12 for ANOVA results.

Table 12

ANOVA results by dependent variable

Variable	*df*	*F*	*p*
Dieting Beliefs Scale[a] (WLOC)	1,74	0.08	.76
Susceptibility to Disease[b]	1,74	0.01	.90
Barriers to Exercise[c]	1, 74	0.00	.96
Barriers to Eating[d]	1, 74	1.43	.23

a. Hypothesis 1. b. Hypothesis 2 c. Hypothesis 3a. d. Hypothesis 3b

Hypothesis 4a

The fourth hypothesis addressed the amount of perceived social support that AA women perceive for engaging in behaviors (eating healthy and physical activity) aimed at losing or maintaining ones weight, and their adherence to USDA recommendations. The first part of the fourth hypothesis (4a) stated that there would be a relationship between perceived social support for exercising and adherence to USDA recommendations in AA women. The null hypothesis stated that there was no relationship between perceived social support for exercising and adherence to USDA recommendations in AA women. This hypothesis was tested by entering social support for exercising, as measured by the Social Support for Physical Activity Survey (predictor variable), and adherence to USDA recommendations, as measured by the USDA Recommendations Survey (dependent variable), in a linear multiple regression, using the scores for the AA participants.

There was a significant linear relationship with the addition of income level as a covariate at an alpha level of .05, F (2, 48) = 3.88, $p < .05$. The sample multiple correlation coefficient was .37. About 13.9% of the variance of USDA Recommendations scores was accounted for by SSPA Scores and income level. Based on these results, the researcher rejects the null hypothesis.

Hypothesis 4b

The second part of the fourth hypothesis (4b) stated that there would be a relationship between perceived social support for eating healthy and adherence to USDA recommendations in AA women. The null hypothesis stated that there was no

relationship between perceived social support for eating healthy and adherence to USDA recommendations in AA women. This hypothesis was tested by entering social support for eating healthy, as measured by the Social Support for Eating Habits Survey (predictor variable), and adherence to USDA recommendations, as measured by the USDA Recommendations Survey (dependent variable), in a linear multiple regression using the scores for the AA participants, to predict the relationship between these variables.

There was a significant linear relationship with the addition of income level as a covariate at an alpha level of .05, F (2, 48) = 5.53, $p < .05$. The sample multiple correlation coefficient was .43. About 18.7% of the variance of USDA Recommendations scores can be accounted for by SSEH Scores and income level. Based on these results, the research rejects the null hypothesis. See Table 13 for results of the linear-regression analyses on Hypotheses 4a and 4b.

Table 13

Regression analyses results for Hypotheses 4a and 4b

Variable	*df*	*F*	*p*	*R*	R^2	β	*t*
Social Support for Physical Activity[a]	1,49	3.88	.027	.373	.139	.132	.987
Social Support for Eating Healthy[b]	1,49	5.53	.007	.433	.187	.256	1.96

a. Independent Variable for Hypothesis 4a. b. Independent Variable for Hypothesis 4b.

Summary of Inferential Analyses

The statistical analyses used for this research did not support the first three hypotheses, but did support the fourth hypothesis. There was not a significant difference between race and weight locus of control, race and perceived susceptibility to weight related diseases, or race and exercising and eating healthy. However, the amount of social

support for exercising and eating healthy that the AA participants received, significantly predicted their adherence to USDA recommendations. The failure to find a difference between the AA and C participants in regards to weight locus of control, perceived susceptibility to weight related diseases and perceived barriers to exercise/eating healthy may be a result of the participants being from similar demographic backgrounds and their being pooled from the same church congregation. These individuals may have been exposed to similar influences and or belief systems.

Exploratory Post-Hoc Analyses

Since there were no significant findings with the comparisons between AA and C women, a majority of the participants were AA, and because the hypotheses solely assessing AA women's dietary behavior was significant, post-hoc analyses were conducted to determine whether there were significant relationships within the model for AA women only. A linear- regression analyses was used to examine the relationship between all model variables in AA women. Specifically, the analyses looked at the components of the model for AA females only, and whether there was a significant relationship between weight locus of control and barriers to exercising and eating healthy, weight locus of control and perceived susceptibility to weight related disease, weight locus of control and USDA recommendations, USDA adherence and barriers to exercising and eating healthy, and USDA adherence and perceived susceptibility to weight related diseases.

Results

There was a significant linear relationship between weight locus of control and barriers to exercising with the addition of age as a covariate (F (2, 48) = 9.87, $p < .001$). There was not a statistically significant linear relationship between weight locus of control and barriers to eating healthy (alpha level of .05, F (2, 48) = 1.66, *ns*). There was also not a statistically significant difference between weight locus of control and perceived susceptibility to weight related diseases (alpha level of .05, F (2, 48) = 2.46, ns). The linear relationship between weight locus of control and adherence to USDA recommendations was significant with the addition of age and income level as the covariates (F (2, 48) = 3.50, $p < .05$). These results are summarized in Table 14.

There was a significant linear relationship between perceived barriers to eating healthy and USDA recommendations with the addition of income and education levels as the covariates (F (2, 48) = 3.86, $p < .05$). There was also a significant linear relationship between barriers to exercising and adherence to USDA recommendations (F (2, 48) = 4.14, $p < .05$). A significant linear relationship between perceived susceptibility to weight related diseases and adherence to USDA recommendations (F (2, 48) = 4.14, $p < .05$) was also found. Table 14 summarizes these results.

Table 14

Regression analyses results for African American participants

Hypothesis	*df*	*F*	*p*	*R*	R^2	*β*	*t*
1a WLOC and Barriers to Exercise	2,48	0.87	.200	.255	.065	-.053	-.418
1b WLOC and Barriers to Eating	2,48	9.87	.000	.540	.291	-.188	.858
2 WLOC and Susceptibility-Disease	2,48	2.46	.096	.305	.093	.041	.283
3 WLOC and USDA	2,48	3.50	.022	.428	.183	-.260	-1.87
5a Barriers to Exercise and USDA	2,48	3.86	.015	.445	.198	-.232	-1.64
5b Barriers to Eating and USDA	2,48	4.14	.022	.384	.147	.164	1.19
6 Susceptibility to Disease and USDA	2,48	8.03	.001	.501	.251	-.371	-2.87

Summary

This study sought to determine whether there were differences between AA and C women in regards to weight locus of control, perceived susceptibility of weight related diseases, barriers to exercise/eating healthy, and whether there was a relationship between social support for exercising/eating healthy and adherence to USDA recommendations. Using an ANOVA, this research failed to reject the null hypotheses that there was no difference between AA and C women in regards to weight locus of control. This research also failed to reject the null hypothesis that there was no difference between AA and C women in regards to perceived susceptibility to weight related diseases. This research also failed to reject the null hypotheses that there was no difference between AA and C women's perceived barriers to exercising/eating healthy.

Using a linear-regression analysis, this research did reject the null hypotheses that social support for exercising/eating healthy was related to adherence to USDA recommendations in the AA participants. However, only 18.7% and 13.9% respectively was attributed to social support for exercising/eating healthy. This indicates that social support can possibly predict AA women's adherence to USDA recommendations, but further examination of this relationship may be needed.

The exploratory post hoc analyses, which examined the relationship between weight locus of control and exercise/eating healthy, weight locus of control and perceived susceptibility to weight related diseases, weight locus of control and USDA recommendations, USDA adherence and barriers to exercising/eating healthy, and USDA adherence and perceived susceptibility to weight related diseases using linear-regression analyses and data from the AA participants, revealed a significant relationship between weight locus of control and barriers to exercise but the relationship between weight locus of control and eating healthy was not significant. This analysis revealed a significant relationship between USDA adherence and perceived barriers to eating healthy/exercising, and perceived susceptibility to weight related diseases. These results suggest that whether AA women perceive barriers to exercise/eating healthy, and whether they believe they are susceptible to weight related disease can predict whether they adhere to USDA recommendations.

The next chapter summarizes the study, and discusses conclusions about the findings. It also discusses the social change aspect, limitations of this study, as well as possible implications for further study.

CHAPTER 5:

DISCUSSION

Introduction

Obesity is rising in all populations, especially in African American women, as an estimated 79.6% of African American women are overweight or obese and at an increased risk for developing obesity related conditions (AHA, 2008). African American women are also less likely than other populations to engage in health-enhancing behaviors (Felton, Boyd, Bartoces, & Tavakoli, 2002; USDHHS, 2005). The purpose of this study was to examine the beliefs and attitudes of African American women, while comparing these beliefs and attitudes to those of Caucasian women in an attempt to understand the higher rate of obesity in this population. Specifically, African American women's perception regarding their control over their weight, susceptibility to diseases due to weight, and barriers to engaging in health-enhancing behaviors in comparison to Caucasian women were explored. In addition, African American women's perception of the amount of social support they receive for engaging in these behaviors was examined.

This was a quantitative study that utilized survey research to obtain information. Participants were obtained from a convenience sample of African American, as well as Caucasian women, recruited from four churches in northeast Texas. This chapter reviews the purpose and limitations of the study, results and interpretations of the quantitative analyses, and possible implications for further study.

Preliminary Statistics

The reliability scores obtained for most of the instruments used for this study were similar to those obtained by the instrument developers. This suggests that the participants for this study answered the questions as consistently as those during the development of the scales. However, the reliability for the Cronbach's alpha for the DBS score was lower for this study than that obtained by the developers (.64 versus .81). This may be a result of some of the items on the scale not being clear to some of the participants. The Cronbach's alpha for the Barriers to Physical Activity and Barriers to Eating Healthy Surveys were somewhat higher than those obtained by the developers (.87 versus .79 and .78 versus .75). It is expected that there will be some variability in reliability scores between the current study and those conducted by the developers (Allen & Yen, 2002). The reliability measures for the Social Support for Eating Habits, Social Support for Physical Activity Surveys, and USDA Recommendations Checklist were in line with scores obtained by the developers.

Research Questions

1. Do AA women perceive more locus of control or less locus of control over their weight (as determined by the DBS) than do C women?

2. Do AA women believe that they are less susceptible to weight related disease than C women?

3. Do AA women perceive more barriers to exercising (as determined by the Barriers to Physical Activity Survey) and eating healthy (as determined by the Barriers to Eating Healthy questions) than do C women?

4. Does the level of perceived support (as determined by the Social Support for Eating Habits and Social Support for Physical Activity Surveys) for AA women correlate with their compliance to weight loss suggestions (as determined by the USDA Recommendations Survey)?

Hypotheses

1. There is a relationship between race and degree (more or less) of weight locus of control (as measured by the DBS).

2. There is a relationship between race and perceived susceptibility to weight related diseases.

3. There is a relationship between race and amount of perceived barriers to exercising and eating a healthy diet.

4. There is a relationship between perceived social support for exercising and eating healthy and adherence to USDA recommendations in AA women.

Group Differences

The results of this study indicated that there were no significant differences between the AA and C participants in regards to weight locus of control, perceived susceptibility to weight related diseases, and perceived barriers to exercising and eating healthy. However, these results should be interpreted with caution as the power of the first three tests were small based on Cohen's (1992) suggested effect sizes and correlating power levels. This can either be the result of inadequate sample size or a truly insignificant differences between groups. There were slightly more than twice as many AA participants as there were C participants, which may have contributed to the small

power levels. Further, research suggests that when demographic variables such as income and education levels are similar, differences between African Americans and Caucasians in regards to attitudes, beliefs, and behaviors are minimized (Proper, Cerin, Brown, & Owen, 2005). Results may reflect the similar demographic backgrounds of the AA and C participants in this study. Results may also be reflective of the geographical region of the participants. This study did find that social support for physical activity and social support for eating healthy were significant predictors of adherence to USDA recommendations for the AA participants.

Zero-Order Correlations

Two sets of zero-order correlations were ran to identify potential confounding variables. First, zero-order correlations were run on all study participants for Hypotheses 1 through 3b, which examined beliefs and attitudes of all participants, and again on AA participants for hypothesis 4a and 4b, which examined beliefs and attitudes of this population only. Although race was not correlated with the attitudes addressed in this study, there were correlations between some of the main study variables for all participants. For instance, perceived barriers to physical activity were positively correlated with perceived susceptibility to weight related diseases, indicating that as perceived susceptibility to weight related diseases increases so does perceived barriers to physical activity. Weight locus of control was inversely correlated with barriers to eating healthy, suggesting that as perceived barriers to eating healthy foods increased, perceived control over weight decreased. An unexpected relationship was that perceived susceptibility to weight related diseases was inversely correlated with adherence to

USDA recommendations, suggesting that the participants' adherence to USDA recommendations decreased, as their perception of their risk to weight related diseases increased.

For the AA participants, demographic variables were significantly correlated with certain attitudes and beliefs. For example, age was positively correlated with perceived susceptibility to weight related diseases and barriers to physical activity, suggesting that as age increases, so does perceived susceptibility to weight related disease and barriers to physical activity. On the other hand, age was inversely correlated with weight locus of control. This indicates that as age increases, perceived control over weight decreases.

Income, weight, and education were significant factors, as each was correlated with a number of attitudes and beliefs. For instance, there was a positive correlation between income and adherence to USDA recommendations, suggesting that as income increases, so does adherence to USDA recommendations. Income was inversely correlated with barriers to physical activity scores, suggesting that as income increases, perceived barriers to physical activity decreases.

Weight had a significant inverse correlation with adherence to USDA recommendations. It had a significant positive correlation with barriers to physical activity and perceived barriers to weight related disease within the AA participants. This suggests that adherence to USDA recommendations decreases as weight increases. On the other hand, perceived barriers to physical activity increased as weight increased, and so did perceived susceptibility to weight related diseases. This is consistent with Baturka

et al.'s (2000) findings that AA women have some awareness of their susceptibility to certain diseases because of their weight.

Education was also a factor. An inverse correlation between education and barriers to physical activity scores suggests that as education increases, perceived barriers to physical activity decreases. Education was positively associated with weight locus of control, suggesting that as education increases, perceived control over weight increases. This may be a result of those having more formal education also being exposed to more health information. These findings suggest that age, weight, income, and education may play a role in AA women's beliefs regarding health behaviors. This is consistent with research in this area. Proper, Cerin, Brown, and Owen (2005) suggested that those from lower income levels and those with less than a high school education tend to have heavier body weights than individuals with higher income levels and a high school education and above. It has also been noted that poverty has been positively associated with obesity in AA populations (Kumanyika, 1994). These factors should be considered by health professionals when designing interventions or making health recommendations.

Hypotheses

Hypothesis 1

Although research has documented a connection between locus of control and behavior, the result of this study did not support those findings (Holt, Clark, Kreuter, & Rubio, 2003; Mills, 1994; Silverman et al., 1986). The researcher sought to determine whether there was a difference in weight locus of control in AA versus C women;

however, this was not supported by the data. AA participant's perceived control over their weight did not differ significantly from C participants. This lack of difference between the races in this study may indicate that when demographic and geographical factors are accounted for, perception of control over weight is not affected by race. The mean score for each group was moderate (highest possible score 96; lowest 16) suggesting that neither race as a whole had a high degree of internal or external weight locus of control. This indicates that believing that one has control over her weight may not play a significant role in weight control behaviors for women in general, and is not a culture specific problem for the AA women in this study.

Hypothesis 2

As noted earlier, there have been conflictual findings regarding AA women's perception of their susceptibility to diseases, especially those associated with being overweight or obese (e.g., Baranowski et al., 2003; Baturka, 2000). Although some studies indicate this as being more problematic in AA than with C women, the results of this study do not suggest a difference. The results revealed that the AA women in the study were not significantly more or less likely to perceive risks to weight related diseases than the C women. This indicates that the AA women's perception of health risks is not notably more of a factor in whether they engage in health-enhancing behaviors than it is for the C women in this study. This does not suggest that it does not play a role, but it does suggest that it may not be culture specific.

For this sample 63.2% of the scores for the perceived risk to weight related diseases in both groups combined were in the low to moderate range (0 to 8 with highest

possible score being 16). These results are consistent with Baranowski et al.'s (2003) statement that perceived susceptibility may not be a reliable predictor of engagement in behaviors aimed at weight loss until obesity becomes more severe in the society at large.

Hypothesis 3

Many individuals report barriers as being a reason for their lack of engagement in health-enhancing behaviors. Research suggests that perceived barriers to health-enhancing behaviors are an issue for both African Americans and Caucasians (Douglass, et al., 1995). Douglass et al. found in their exploratory study, aimed at identifying differences in AA and C women's health beliefs and practices regarding early detection of breast cancer, that C women actually reported more barriers to mammography and clinical breast examinations. According to Douglass, et al., subjects were all professional educators, which could indicate that when income and education levels are similar, AA women may be just as likely or more likely to perform self-screenings.

The current study was consistent with the above findings. Demographic information, including income and education levels, was similar for AA and C participants and results reflected these similarities. There were no significant differences found between AA and C participants in the amount of perceived barriers to exercising or eating a healthy diet.

Hypothesis 4

Research suggests a strong relationship between support from friends, and especially family, and engagement in health-enhancing behaviors. Russell and Jewell (1992) suggested that African Americans are often strongly connected and influenced by

significant others within their community. Whether or not they engage in health promoting behaviors can depend greatly on the perceived support that they obtain from those they consider important. The results of this study are consistent with this statement, as there was a significant relationship between the AA participant's perceived social support for exercising and eating healthy and their adherence to USDA recommendations when income level was included. Neither social support for exercising or eating healthy significantly predicted adherence to USDA recommendations without income as a factor. This suggests that although social support is important for adherence to USDA recommendations, income level is the prominent predictor of this behavior.

Exploratory Post-Hoc Analyses

Since there were no cross group differences between the AA and C participants in Hypotheses 1 through 3b but results of the zero order correlation and Hypotheses 4a and 4b did yield some significant findings, an exploratory analysis was conducted to further examine these findings. Linear-regression analyses examined the relationship between all model variables in AA women. Specifically, the analyses looked at the components of the model for AA females only and whether there was a significant relationship between weight locus of control and barriers to exercising and eating healthy, weight locus of control and perceived susceptibility to weight related disease, weight locus of control and USDA adherence, USDA adherence and barriers to exercising and eating healthy, and USDA adherence and perceived susceptibility to weight related diseases. Weight locus of control significantly predicted barriers to eating healthy, but only when age was added as part of the model. However, it did not significantly predict barriers to eating physical

activity. This suggests that increasing age plays a significant role in perceived control over weight and barriers to eating healthy, but not barriers to eating exercising. Weight locus of control was not a significant predictor of perceived susceptibility to weight related diseases; however, it did significantly predict adherence to USDA recommendations, but only when income level was added to the model. This suggests weight locus of control in the AA participants did not predict their susceptibility to weight related diseases; but it did, along with income, predict their adherence to USDA recommendations. According to these findings, the participants were more likely to adhere to USDA recommendations if they believed they had control over their weight, however, they did not connect control over their weight with their susceptibility to diseases associated with weight.

Perceived barriers to physical activity and income level significantly predicted adherence to USDA recommendations. Perceived barriers to eating healthy, education level, and income level also predicted adherence to USDA recommendations. This suggests that barriers to health-enhancing behaviors are a factor for the AA participants, but mainly when income factors are considered. One other finding from the post-hoc analyses with the AA participants was that perceived susceptibility to weight related disease significantly predicted adherence to USDA recommendations. This highlights perceived risk of weight related diseases as a factor in the AA participant's adherence to USDA recommendations. Results are depicted in Figure 3.

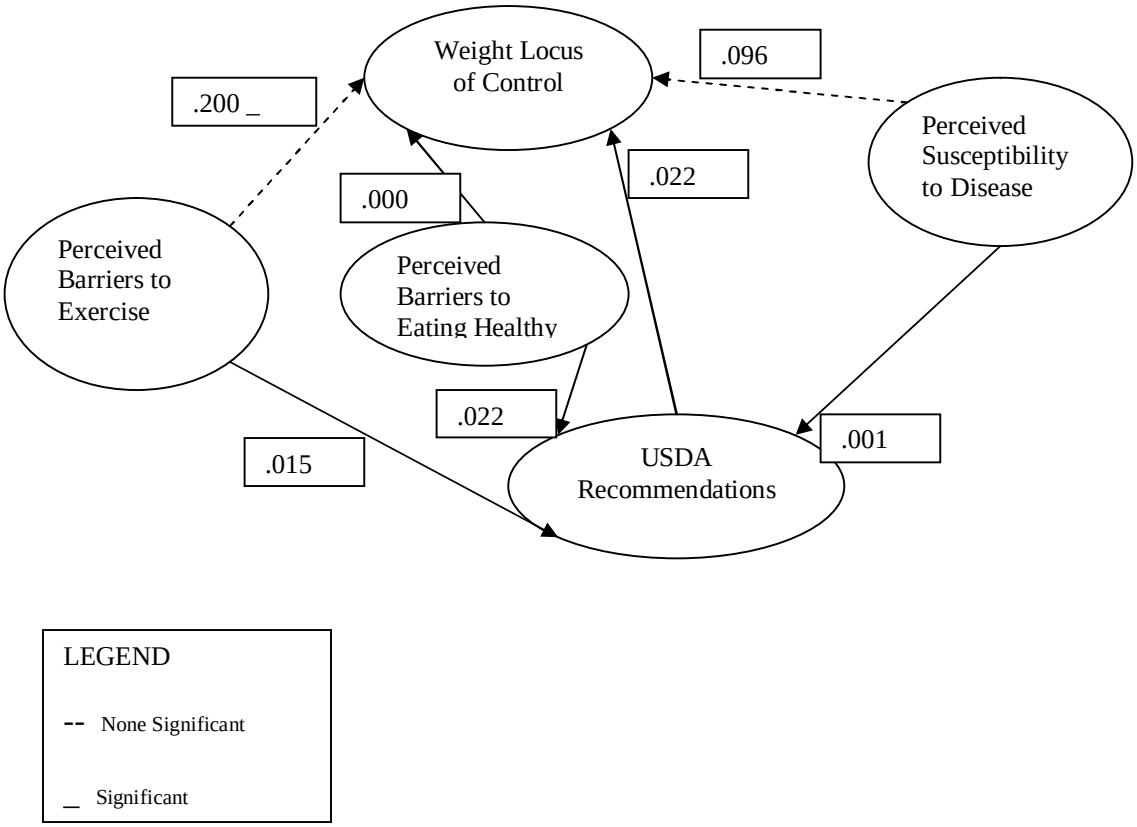

Figure 3. Path Diagram Model of Regression Analyses for African American Participants

EHBM

The EHBM suggests that locus of control, perceived susceptibility to disease, barriers to health-enhancing behaviors, social support, demographic variables (i.e., age, race, gender, ethnicity),health value, self-efficacy, and sociopsychological variables (i.e., personality, social class, peer and reference group pressure) predict health behaviors (Aalto & Uutela (1997). These variables are considered modifying factors in that they directly influence perceptions and indirectly influence health-enhancing behaviors (Becker et al., 1977). In this study, modifying factors such as social class and age influenced attitudes and beliefs more so than race as the hypotheses purported. The correlational analyses suggested that demographic variables such as age, weight, income

level, and education level significantly correlate to health-enhancing behaviors. Findings suggest that the beliefs and attitudes purported by the EHBM significantly relate to the demographic variables mentioned above. Further, this study supported the influence of social support as a predictor of health-enhancing behaviors.

Implications for Social Change and Recommendations for Further Study

One's health is very important for well-being. Many Americans suffer from life-threatening diseases that are preventable through lifestyle changes such as engaging in regular physical activity and eating a healthful diet, as recommended by the USDA. This study sought to add to the literature, reasons that may keep AA women from engaging in these behaviors. The addition of C women in the study helped to identify whether some of the factors that contribute to a lack of engagement in health seeking behaviors in AA women are more prominent in this population. The anticipated immediate outcome of this study was to help fill in the gap in the current literature base regarding AA women's eating/exercise behavior as well as differences between AA and C women's health beliefs that may account for AA women's higher rate of overweight and obesity. Further, it may assist treatment providers as well as those dedicated to developing health improvement programs for AA and C women, such as USDHHS and National Institutes of Health, with identifying beliefs and attitudes that impede both race's aherence to treatment recommendations and health guidelines. They can in turn work with these women to eliminate or reduce those obstacles or create programs that address them. As a result, these women may benefit from interventions that meet their needs, possibly leading to increased adherence to treatment recommendations and improved health.

This study suggested that AA women may not differ significantly from C women in regards to the belief that they have control over their weight. This was not a prominent factor within either population, as neither group demonstrated a high or low degree of locus of control over their weight. This study did not support the concept that AAwomen are less aware of their susceptibility to weight related diseases than C women. The findings suggest that the awareness of susceptibility is about the same between the groups studied and that this may not be a culture specific issue. However, these findings should be interpreted with caution due to the power level of the study.

Recommendations for Action

This study highlighted that perceived barriers were a significant aspect of adherence to health seeking behaviors in the AA women and needs to be adressed in programs designed to improve these behaviors. Once more, age played a significant role in whether individuals perceived barriers to health seeking behaviors, which is consistent with other research findings (Russell, 2006; Frank et al., 2004; Koch, 2002; Champion & Springston, 1999). Both health psychologists and doctors may want to tailor recommendations around barriers. In addition, it may be useful for health psychologists and nutritionists to work with clients to overcome barriers. Further, an individual's age and the role that it plays on both perceived and actual barriers, should be considered.

This study revealed that education level was connected with perceived barriers and subsequent adherence to health recommendations. Research in this area also indicates a connection between education level, perceived barriers, and adherence to health recommendations (Douglass et al., 1995). It may prove helpful for health professionals to

ensure health recommendations are at a comprehension level that is understoond by clients. Further, making sure that clients are educated about ways to reduce barriers may be helpful as those with less formal education may not be exposed to health information as much as those with more formal education.

Perception of risk to weight related diseases predicted USDA adherence in the AA participants and was correlated in both AA and C participants. There is conflicting research regarding whether AA women perceive weight related health risks less than C women (Baturka et al., 2000; Sadler et al., 2005). This study added to the literature by suggesting that AA women may be as likely to perceive health risks to weigh relate diseases and may adhere to health recommendations once they are aware of their risks. This suggests a need for health professionals to educate both populations on their health risks in order to increase compliance with health recommendations.

A connection between social support for exercising and eating healthy, income levels, and adherence to USDA recommendations in the AA participants was highlighted through the post-hoc analyses. This was consistent with findings from research, which suggest that African Americans engage in health behaviors more often when they perceive support for those behaviors (Anderson, Wojcik, Winett, & Williams, 2006). Felton et al. (2002) found in their study of AA women that 36% of the participants stopped exercising because of a lack of support. Health programs targeted towards this population should include social support as a component. Further, the economic factor should be addressed in order to increase the chances of success.

Those considering the recommendations for action listed above should take the power level obtained in this study in mind. Results should be disseminated to those engaging in health disparities research, study participants who requested a copy of the results, and others interested in assisting with improving the health of AA as well as C women.

Recommendations for Further Study

Delving into the effect that demographic variables has on each race's engagement in health-enhancing behaviors should also be examined further. Results suggested a relationship between beliefs and income, education level, age, and weight in the AA women. Further research on how these factors directly impact AA women's health behaviors may assist with interventions to meet their needs. There also needs to be further research into the role that social support has on adherence for AA women and its implications for their health. Future research should examine the role that social support has on C women's health behaviors and access differences between AA and C women. Future research should also assess the causal relationship among the significantly correlated variables in this study.

Findings from this study suggest that increased age is connected with barriers to physical activity in AA women. Future research may examine barriers to physical activity in older populations to determine whether these barriers can be overcome or are inevitable. Further study into the different types of barriers encountered by participants may also prove beneficial, in order to provide further insight and documentation for interventions.

The connection between USDA adherence and perceived susceptibility to weight related diseases in all participants suggests that these women tend to engage in health-enhancing behaviors more often when they perceive that they have a health risk. Future studies may examine whether lack of perceived susceptibility or misconceptions is a major issue with AA and C women's adherence to health behaviors.

As this study did not do an in-depth qualitative examination of beliefs and attitudes within each group and then compare the two, this may be an area for further research. Such research may help to determine possible unique attitudes and beliefs prominent with each race, thereby further identifying ways to tailor interventions to both AA and C women.

Three of the instruments (Barriers to Physical Activity, Social Support for Physical Activity, and Social Support for Eating Habits) contained subscales that broke the types of barriers and social support down into components, which can provide further information into types of barriers participants encountered and the type of social support that was either beneficial or detrimental. Further study using the Barriers to Physical Activity, Social Support for Physical Activity and Social Support for Eating Habits scale could provide valuable insight into contributing factors to engagement or lack thereof in health-enhancing behaviors.

Since the power level of this study was below .50, a replication of this study may be beneficial to see if similar results are obtained, or if there is indeed a difference between AA and C in regards to health beliefs and attitudes.

Limitations

This study is limited in that it is unable to determine a cause and effect relationship between weight locus of control, health beliefs and health behaviors as correlation does not equal causation. This study did not have an equal number of AA and C participants. Having more C participants may have provided more insight into differences between the two groups. Further, the AA and C participants came from the same church, which may have resulted in similar attitudes and beliefs. The low effect sizes for the mean differences of the study variables between the AA and C participants suggest that the results may not be reliable and should be interpreted with caution. This limits the generalizability of the results. This study did not delve into issues that may be culture specific for African Americans such as their tendency to prefer larger body sizes. It also did not explore the role that social support has on the exercise/eating behaviors of the C participants. There were also some limitation to the DBS scores obtained from the study, as the Cronbach's Alpha was below the common acceptable level (< .70) for research purposes in the social sciences (Allen & Yen, 2002). Women in this study were from the same geographic region, such that the results may not be generalizable to women in other regions. Further, by limiting the scope of this study to women, there is no way of determining whether the barriers are unique to this population. The number of survey questions may have resulted in some participants answering some of the later questions without careful consideration. This may have resulted in inaccurate results. Although participants placed their names in a raffle for a drawing, there was no immediate reward for participation. This could have resulted in low motivation to

complete the surveys accurately. Further, since the surveys were completed in a group setting, participants may have felt a need to portray themselves in a more positive light.

In conclusion, although three out of four of the hypotheses from this study were not supported, there is information that can be gleaned from the results. For instance, the more risks these participants perceived to weight related diseases, the more barriers they perceived to physical activity. Once more, there was an inverse connection between perceived susceptibility to weight related diseases and USDA recommendations. The participants may have felt that since they were susceptible to weight related disease there was no benefit in adhering to health recommendations. These connections may suggest a defeatist attitude with the participants. However, it may also indicate that they did not feel they were able to adhere to health recommendations because of preexisting or potential health conditions. Further research into this connection could determine if and or how the two are connected.

This study suggested that within this study population, AA and C women's beliefs may not differ significantly and that demographics such as age, income, weight and educational level may be more predictive of attitudes rather than race, especially for the AA participants. However, these results should be interpreted with caution. For instance, perceived barriers to physical activity and eating healthy impacted adherence to USDA recommendations within this population. Weight locus of control and social support was also a factor in USDA adherence. These results highlight the fact that attitudes affected health behaviors with the participants. Further research into the connection between

beliefs and behavior with AA and C women and may provide more insight into AA women's higher rate of obesity.

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CURRICULUM VITAE

CASSAUNDRA MURRAY, M.A.
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Academic Experience:

06/03-Present **Candidate for Doctor of Psychology-Clinical/Health Psychology** Walden University Minneapolis, Minnesota

08/00-05/01 **School Psychology Certification** Eastern Kentucky University Richmond, KY

06/96-12/97 **M.A. in Psychology** from University of Mary Hardin-Baylor Belton, TX

08/91-05/95 **B.A. in Psychology** from Grambling State University Grambling, LA

Practicum/Internship Experience:

09/07-9/08 Otsego County Mental Health Clinic Oneonta, NY

Doctoral Psychology Intern

- Counseling with adult population
- Conduct psychological evaluations
- Write psychological reports
- Crisis Management

03/07-08/07 University of Kentucky Pediatric Department-Adolescent Medicine Section/Lincoln County School District

Practicum Student Lexington, KY

- Counseled with adolescents ages 10-18
- Conducted psychological evaluations
- Wrote psychological reports
- Consulted with parents and teachers

8/01-5/02 Lincoln County School District Stanford, KY

School Psychology Intern (School Psychologist)

- Conducted special education evaluations
- Wrote psychoeducational reports
- Counseled with students
- Conducted behavior observations
- Participated in Admissions and Release Committee (ARC) meetings
- Consulted with teachers regarding student academic and behavior difficulties

01/01 – 05/01 Jessamine County School District Nicholasville, KY

Practicum Student

- Conducted special education evaluations
- Conducted behavior observations.
- Participated in Admissions and Release Committee (ARC) meetings
- Wrote comprehensive psychoeducational reports

08/97 – 12/97 The Avalon Center Eddy, TX

Practicum Student

- Counseled with adolescent girls

06/97– 08/97 Cedar Crest Children's Clinic Harker Heights, TX

Practicum Student

- Led and Co-led psychotherapy, art/recreational therapy, and social skills training groups

Relevant Professional Experience:

08/01-6/07 Lincoln County Board of Education Stanford, KY

School Psychologist

- Performed consultations with teachers and parents
- Provided counseling to students
- Conducted psychoeducational evaluations
- Created behavior management plans
- Conducted functional behavioral assessments
- Conducted staff trainings
- Co-facilitated special education department at the high school
- Coordinated assessment team

11/99 – 07/01 Bluegrass Regional MHMR Board Lexington, KY

Family Intervention Therapist

- Provided in home therapy to families in crisis
- Participated in weekly case consultations with other therapists
- Maintained a progress chart on families on my caseload

09/98 – 08/99 Loe-Del, Inc. Marion, TX

Counselor

- Performed play therapy/individual therapy with children ages 3-19
- Conducted training for staff and parents
- Performed classroom observations
- Engaged in parent consultations
- Wrote treatment plans

01/98 – 09/98 Lighthouse Family Network Salado, TX

Case Manager

- Oversaw the treatment and needs of children in therapeutic foster care
- Conducted weekly consultations with foster parents
- Wrote individual service plans

09/95 – 06/96 Methodist Children's Home Ruston, LA

Child Care Worker

- Supervised and counseled youth
- Performed crisis intervention
- Wrote daily logs of youth progress

09/95 – 05/96 Lincoln Parish School Board Ruston, LA

Substitute Teacher

- Implemented the instructor's lesson plan
- Supervised children's recreational activities

Community Service

2003 People Helping People, Committee Member, St. James Baptist Church, Danville, KY

Licenses and Certifications:

License Temporary Licensed Professional Counselor (Texas-has expired)

Certification Certified School Psychologist

Honors and Rewards

2003 **S**chool Psychologist of the Year Nominee
Kentucky Association for Psychology in the Schools

2001 Therapist of the Month
Family Preservation
Lexington, KY